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ORIGINAL ARTICLES.

EVERY-DAY HEADACHES.[1]

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Of the many unpleasant incidents to which human flesh is heir few never cause headache, and no complaint which brings patient to physician requires for its complete understanding a wider range of accurate knowledge or larger measure of diagnostic acumen than does this same symptom; and for its relief none needs a wiser adaptation of means to ends. Indeed, I have known a long series of excellent general practitioners and skilful specialists to be led humiliated captives by one petty ache in the head.

Obviously, a twenty-minute paper cannot be a treatise on headache with all its confusing intricacies; my present aim is to present for your discussion a few practical considerations on two of those cephalalgias which daily come to the doctor, be he internalist or dermatologist, gynecologist, laryngologist, ophthalmologist, proctologist, or family physician.

Every-day headaches may be considered to be those of:

1. Infection and toxemia (fever, Bright's disease, constipation, etc.).
2. Neurasthenia.
3. Migraine.
4. Eye-strain.
5. Anemia.

Classes one, four, and five are tolerably well understood; com-

[1] Read before the Illinois State Medical Society, May 14, 1900.

plications aside, diagnosis and treatment are relatively simple. A careful clinical examination, to which every patient is entitled, will nearly always reveal the cause, and removal of the cause cures the headache.

The head pains of migraine and neurasthenia seem to share the contempt born of familiarity. Every member of this society is repeatedly called upon to treat, or at least to diagnosticate, these two diseases, and yet how few really know much about them or even make a conscientious effort at knowledge of their peculiarities.

Headache of Neurasthenia.—To use a Hibernianism, the most striking peculiarity of a neurasthenic pain in the head is that it is no pain at all. The patient would probably feel this paradoxical statement to be a personal affront, or would at least term it a characteristic medical absurdity. Nevertheless it holds good. However bitterly the victim may complain of his head, however truly and constantly he may suffer, the fact remains that careful inquiry will nearly always show the headache to be not a hurt but a distress or discomfort. Be it at once understood that this does not minimize the affliction, for in the same breath with which the patient acknowledges that it is not exactly a pain, he will earnestly and honestly aver that he would ten times rather have a regular pain. What he has is a sense of pressure or constriction or expansion; a feeling of heaviness, of lightness, of fulness or emptiness; a sensation as of a foreign body within the cranium, or as if there were a vacuous cavity which needed filling. The foreign body complained of may appear to be liquid or solid, loose or fixed, and the conviction of its presence be so complete that the patient demands operation for its removal. A frequent complaint is of a feeling that there is some material hindrance to mental effort—an intense appreciation of some obstruction to brain action. Sometimes this is described as a veil, screen, or cloud that darkens and retards all intellectual activity, or the plaint is simply of a dull, deep-seated, frontal, occipital, or temporal *something* which the sufferer is unable to define with nicety. Altogether too frequently one hears about a pressure at (or on) "the base of the brain," a glamouring expression which emanated, I regret to say, from the medical profession, and which, notwithstanding its utter absurdity, still lingers in the nomenclature of our submerged fifth.

In my experience a geometrical pain means neurasthenia or something allied to it. By geometrical pains I mean those in points, lines, squares, circular areas, parallelograms, triangles, etc. But here again it is to be remarked that a geometrical pain is rarely a

veritable pain, but rather a pressure, or a heat, or a coldness, or a drawing, or some other dolorous paresthesia.

Notably peculiar is the negative attribute of neurasthenic headache that, no matter how severe it may be, it allows the sufferer to sleep. As a matter of course the subject of neurasthenia may sleep insufficiently and sleep poorly, but it is not pain in the head that keeps him awake. Whenever a headache is so intense as of itself to prevent sleep, some cause besides neurasthenia is at work. Naturally, a neurasthenic may have such a headache in addition to his legitimate perquisite.

Not very unusually a neurasthenic discomfort is identical in kind and location with the distress of asthenopia. The patient suffers from intense weariness of the eyes; with a dull ache felt behind or over them; with a sense of bulging or tenseness of the bulbs or of pressure in the sockets, perhaps accompanied by superficial burning; although this distress is induced or greatly intensified by reading, glasses give no relief, or at least an amelioration so transient as to allow the conclusion that the distress is of purely neurasthenic origin, possibly with the addition of a psychic element.

More than any other headache, except the hysterical one, is that of neurasthenia amenable to diversion. Oftentimes this fact is apparent to friends when not to the patient, but the sufferer himself is apt to notice it and to be puzzled by it, and its apparent inconsistency with real disease may cause him to accuse himself of hysteria or "imagination." Unfortunately it has been known to mislead the practitioner of medicine as well; he cannot give credence or even serious consideration to a headache which disappears before the mild excitement of social intercourse or the preoccupation of absorbing business, to reappear on the first opportunity of undisturbed self-contemplation: but such are the traits of many a neurasthenic headache.

With the exception of such transient relief as may be obtained by medicines or diversion, the headache of neurasthenia tends to be constant or nearly so. Patients who are "always conscious that they have a head," are "never free from headache," "have not a moment's peace," "have had a headache for three years," etc., are nearly always neurasthenics, and this continuousness separates their headache sharply from migraine and neuralgia. He who has had a headache for three months is pretty sure to be suffering from neurasthenia, or from grave organic disease.

The only proper treatment of neurasthenic headaches is treatment of the neurasthenia. Simply alleviation of the symptom to

the neglect of the causal condition is to be roundly condemned. The relief so obtained is incomplete, transitory, and only makes the case worse afterward. In the rational handling of such a case the cephalic distress is to be practically ignored, with the assurance that when the neurasthenia is cured the head trouble will have vanished. For many reasons, however, it may be good policy to administer palliative treatment until there is time for more radical measures to become effective: to put in a temporary prop—a prop to hold the confidence as well as the comfort of the patient—until a permanent support can be built up. For this purpose bromide of potassium or sodium is ordinarily the best drug, but enough must be given to be effective. I have no patience with the routine prescribers of five-grain doses of bromide. In the absence of idiosyncrasy, I would as readily join our little-pills brethren and give the tenth dilution of bryonia or pulsatilla. Twenty to forty grains three times daily is about the right amount, and although chemically strychnine is incompatible with the bromides, and physiologically is supposed to be antagonistic, I often give both drugs, I know with good effect.[1] Ordinarily they are not combined in the same mixture, as the strychnine is precipitated.

The radical treatment of neurasthenia is a large, a very large, subject, and cannot be considered here. Some suggestions may be found in a paper I read before this society[2] two years ago, but a common-sense, thoughtful consideration of the nature of the disease, with careful study of each individual case, will generally supply all necessary indications. Rest, proper food properly given, systematically graduated exercise, mental discipline, outdoor life, adequate sleep, baths—in short, the very best obtainable mental and physical hygiene—must be the foundation of all treatment.

Headache of Migraine.—Of all the common nervous diseases which are currently misunderstood, little understood, or not understood at all, migraine easily leads the van. Even in this day and generation, years after the classic work of Liveing (1873), and notwithstanding the later labors of Charcot, Weir Mitchell, Sinkler, Möbius, and a host of others, it seems necessary to affirm, reaffirm, and reiterate the statement that migraine is exceedingly frequent and that it is *not* neuralgia, gastric headache, bilious headache, or nervous prostration headache; that it is not a reflex pain from nasal disease or ocular anomalies; that it is neither the headache of intes-

[1] As a matter of fact, in their primary and most important action they are not antagonists at all.

[2] Remarks on the Treatment of Neurasthenia. Transactions Illinois State Medical Society, 1898; or MEDICINE, March, 1899.

tinal absorption nor simply uric acid poisoning — the much-touted assumptious assertions of Haig to the contrary notwithstanding. It is as distinct from neuralgia as is typhoid fever from malaria, although the same patient may have neuralgia and migraine. As I have already hinted, and as I should like to emphasize, migraine is not the cephalalgia of neurasthenia and brain fag. Least of all is it a reflex neurosis from the pelvis—the far-fetched cry of a tortured uterus or the ventriloquistic wail of that gigantic myth of would-be gynecologists, the ever-feared, oft-predicated, and never-seen *bête noire*, "ovarian irritation."

If migraine is none of these, what is it? Well, as in the case of love or monistic philosophy, it is easier to say what it is not than to tell what it is; like hysteria or Presbyterianism, it is more easily described than defined. As nearly as is any functional disease, it is a distinct pathological entity, the specific result of causes not yet known, but aggravated by manifold unwholesome agents, indeed by any influence that tends to depreciate the general health and lessen the resistance of the nervous structures involved.

The most important etiological factor, at least far and away the most constant one, is heredity. This particular headache descends from parent to child, generation after generation, with greater frequency aud more persistency than any other disease, not even excepting tuberculosis; and this regardless of bad stomachs, poor eyes, sluggish bowels, rheumatism, gout, crooked septæ, tipped uteri, and sclerotic ovaries. In an analysis of fifty consecutive cases, my friend Dr. Samuel J. Walker[1] found evidence of more or less direct heredity in about 95 per cent. This, then, is the first characteristic of migraine, viz., heredity.

Quite in harmony with the fact of its inheritance and almost pathognomonic of the affection are its precocious inception and long continuance. Scores of patients between 40 and 50 have told me that they had suffered from headaches ever since they could remember. Even children and young people in their teens may be unable to recollect a time when they were not subject to attacks of cephalalgia. For many women the disease disappears at about the time of the menopause, and a fair proportion of male sufferers get rid of the plague at about the age of 60, but many of the bad cases continue unabated into old age; half a lifetime is a low average of its duration.

Unlike neurasthenic headache, the pain of migraine is severe; a distinct and unmistakable hurt, and in the majority of instances dis-

[1] *Journal of the American Medical Association*, Sept. 30, 1899, p. 839.

ables the patient during its continuance. Almost peculiar to this particular headache is its more or less irregular periodicity; its appearance in distinct attacks, separated by entirely free intervals. When the disease has existed for years the intervals may become so short that the sufferer has almost continuous headache, or the attacks may be so frequent that the patient, worn out with pain and loss of sleep, acquires a constant neurasthenic headache in addition to his migraine; but these are exceptional cases, and in the earlier years the rule of irregular periodicity always holds good.

In strong contrast to typical neuralgia, the pain of migraine is not intermittent or even strikingly paroxysmal; it may throb somewhat, but for the most part is a steady, intense pain. The subjects generally describe it as deep-seated—never as distinctly superficial—although after an attack the scalp may be tender, especially to slight sensory stimuli, such as combing the hair.

For the first ten years after the beginning of a migraine, the attacks rarely last longer than twelve hours, and they are pretty distinctly diurnal; that is, they begin in the morning or during the day, or may even begin in the night and last through the day, but when the patient goes to bed he goes to sleep, and the next morning finds that his headache has disappeared.

I say *his* headache not because migraine has a predilection for men—indeed, it more frequently attacks women—but because every person's migraine has something idiosyncratic about it; it is always the same old thing, and the patient always speaks of it as "*my* headache," "*my* neuralgia," "*my* bilious attacks," etc., according to his own ideas as to what it should be called, but always with the understanding that it is peculiarly his. If, perchance, from some cause or other he has a different headache he knows it at once for an alien, while at every approach of a migranous attack he instantly recognizes the individuality of his lifelong enemy.

I have tried to make unequivocal the assertion that migraine is neither simply a manifestation of uric acid intoxication or intestinal absorption, nor pain begotten of disease in the nose, stomach, or uterus; that it is not the cephalic distress of nervous prostration; not the voice of anemia, not the signal of organic disease—but be it distinctly understood that the attacks may be made more frequent and severe, may even be clearly determined by any such disturbing influences. A man who is accustomed to have a migrainous seizure about once a month may have one every week if he indulge in undue dissipation or be subjected to great mental strain, loss of sleep, the debilitation of general disease, or the deleterious effects of poisons.

Negatively, it is to be said that migrainous headache need not be accompanied by nausea or vomiting; that although sometimes called hemicrania the pain need not be one-sided; and that although often associated with disturbances of general sensation or special senses, such accompaniments are not uniform. Furthermore, it may be well to state that ophthalmic migraine—that is, migraine accompanied by scintillating scotoma, central scotoma, hemianopia, and the like—is no more caused by ocular anomalies than are migrainous headaches unattended by visual symptoms.

In my own experience migraine is most frequently miscalled neuralgia, gastric headache, and nervous headache. To be sure, it really is a nervous headache, but generally thereby is meant a head pain simply as part of general nervousness or caused by some mental or emotional perturbation, whereas such relation in migraine is exceptional. Considering the many distinctive traits of this headache and its extreme commonness, the frequent failure to recognize it would appear almost humorous were it not humiliating. Therefore, before saying a word or two as to treatment, I venture to catalogue the most prominent of its distinguishing features—features that make confusion of this affection with any other practically impossible.

1. Heredity, more often on the mother's side.
2. Inception, generally under 15, nearly always under 20.
3. Attacks, at first two or three times a year to once a month; later, once in two months to two per week.
4. Duration of attack, six to thirty-six hours.
5. Freedom from pain in intervals.
6. Continuance of affection through many years.
7. Pain severe; nausea or vomiting rather frequent.
8. Prodromes not infrequent and nearly always the same for each individual.
9. Accompaniments of visual, sensory, or speech symptoms almost pathognomonic, but not often present.
10. During continuance does not admit of sleep.

The rational treatment of migraine may be inferred in large measure from what has been said regarding its nature and etiology. Scrupulous attention to the general health, the best of hygiene, especially hygiene of the nervous system, and careful removal of all local abnormalities which may act as general depletants or as fretters of the nervous system, must be the first care. Possibly ocular anomalies, especially in the young, deserve separate mention. Deplorable though it be, the fact remains that the majority of physicians do not

make complete examinations, hence cannot fully treat the patient. This one is very thoughtful as regards eyes, another is intent upon so-called autointoxication, a third scrutinizes the nasal cavities, still another gives a test breakfast and examines stomach contents with minute care, while the need is for a broad visual field and good judgment. Be it never forgotten that *the mere presence of structural anomaly in any part of the body is absolutely innocuous if it does not impair function*, and that local disease or abnormity seldom determines attacks of migraine by so-called reflex action, but operates by decreasing vitality and hence increasing irritability and instability. The septum sawyer, the muscle cutter, the stomach washer, the rectum manipulator, and the castrator, will each have his modicum of success, but his failures will be as legion over against the sporadic good results.

Treatment based on the uric acid theory is a relative failure as far as I have been able to learn by experience and from knowledge of the results of others. Improper diet, imperfect metabolism, and insufficient excretion are all pernicious and always to be reckoned with, but the course advised by Haig—great reduction of proteids ingested, with administration of salicylates, iodide of mercury, etc. —has been singularly ineffective in my hands, and after eliminating faulty diagnoses and the personal equation has seemed to me to be not much more satisfactory in the hands of my colleagues. Even Haig, exalted as he is with his gospel of salvation, does not claim to have cured his own migraine.

In contrast to the discouraging record of operative interference and of treatment based on the various theories of local and toxic etiology, I have neither a new therapy to offer nor brilliant results to record. I have yet to hear of the radical cure of a bad case of typical migraine. As already stated, women not infrequently lose the affliction after the menopause and men after the age of 60. In the course of clinical histories of nervous patients it is not very exceptional to hear of spontaneous cessation of the disease or of long periods of quiescence, but an unmistakable, deliberate cure must be a great rarity. Considerable amelioration may often be attained, in a few cases so pronounced as to amount to practical cure.

In the medicinal treatment my own preference is for cannabis indica, on purely empirical grounds. The reasoning of Seguin,[1] who attributed its good effects to "a sedative and even a paralyzing influence on the third cerebral nerve and its attached muscles,"

[1] *New York Medical Journal*, April 5, 1890.

seems to me fallacious and to have quite insufficient basis in fact. Success with this remedy will depend largely upon the recognition of three variant factors; namely, quality of preparations of the drug, difference in individual susceptibility, and substitution by druggists. Some preparations put upon the market by reputable manufacturing firms are worthless; one person may take twenty times as much of the drug as another. I have known three drops of the fluid extract to produce distinct symptoms in a large and vigorous young man, while from the same bottle sixty drops failed to produce the slightest effect in either of two ladies. Physiological effects were reached in different persons by all doses between these extremes. In my experience the fluid extract made by Parke, Davis & Co. has proved to be the most satisfactory. Doubtless there are others just as good, but I do not happen to have found them. The initial dose is three or four drops after each meal, and the amount is to be rather rapidly increased until the limit is reached for the case in hand—that is, until distinct physiological effects appear—when the dose is to be diminished just within the limit and held there indefinitely. Thus given, cannabis indica will materially alleviate the great preponderance of cases. As an example of an unusually good result I present the following case:

Miss A. H——, 42 years old, a wage-earner, was sent to me on February 22, 1898. She knew very little of her parents, but remembered that her mother had suffered with severe headaches. Her own trouble had begun nine years before as an occasional pain over the right eye, which would last all day and disappear with sleep. At first, the attacks occurred only three or four times a year, but gradually they became more frequent and severe, and after four years began to be attended with vomiting. From this time on the disease constituted a serious disability, as the attacks attained a frequency of once a week or once in two weeks, each attack continuing from two to four days, and during its continuance rendering the patient bedfast. Without exception the pain was felt in or behind and above the right eye, and doubtless it was this rather unusual and constant location that misled previous medical advisers to consider the case one of neuralgia. The infraorbital nerve had been operated on by one physician, and just before the patient came to me, a distinguished surgeon, on the advice of an eminent physician, had proposed to extirpate the Gasserian ganglion. She was given fluid extract of cannabis indica and a saline laxative, the latter being soon changed for a pill of aloes, podophyllin, belladonna, and nux vomica on purpose to exclude anything which

might act by relieving a possible uric acid diathesis. No change was made in diet or other habits. Two days after beginning treatment she had a "premonition" of an attack in the form of a sensation of quivering or twitching about the right eye, and this was repeated two weeks later. From that time to July 20, 1900, when last seen—a period of two years and five months—she had just one severe attack of migraine. She had, however, five milder attacks, each apparently caused by failure to take the medicine. After two of these a month apart, I discovered that the druggist was supplying a preparation other than that prescribed; it was made by a prominent eastern house, but was practically inert. On the other occasions she carelessly omitted the medicine for several weeks at a time. When last seen she had had no sign of headache for six months. She has not reached the menopause.

In several instances I have found even a good preparation of the drug to be entirely without effect upon the disease, and I must confess that in these cases I have not been much more successful with other means, although sometimes a course of bromide, as for epilepsy, or of nitroglycerin, or of the two combined, has been of distinct assistance. Mendel recommends a mixture of sodium salicylate, sodium bromide, and aconitine, and I have found it useful in a few cases when given regularly for a long time.

VENETIAN BUILDING.

RELATION OF EYE-STRAIN AND PNEUMOGASTRIC REFLEXES TO DIGESTIVE DISORDERS.[1]

BY A. L. BENEDICT, M.D.,
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Some oculists claim that every case of sick-headache is due to eye-strain. Specialists in other fields have said that every case of bowel disturbance with distress and tenderness over the appendix should be operated upon, and that various neurasthenic symptoms could be removed by stretching the sphincter ani or sewing a lacerated cervix uteri. All extremists must expect to have their sincerity at least questioned, and they must present the most unequivocal arguments in support of a statement regarding medical practice which includes the words "always," "never," and "every." My paper may be disappointing, since it is impossible for one who views the subject broadly to declare either that eye-strain is a cause of gastric reflexes in a majority of instances, or that gastric symptoms are always independent of the element of eye-strain. You are familiar with the scriptural condemnation of trying to be "all things unto all men." If you will allow a twisting of words, I will say that the physician who tries to be the whole thing to all cases is potentially a blunderer.

The following case may be cited as an example of what some oculists have considered gastric reflex from eye-strain: R——, aged 32, U. S., married, superintendent of a large business, suffered intermittently for years with headache and epigastric distress, nausea, etc. The distress was regularly relieved by eating, and would remain absent for two or three hours after a bread-and-milk meal, but only for fifteen or twenty minutes after a hearty dinner. He had not been free from pain for more than a day or two at a time for several months. Palpitation of the heart was occasional, and during the summer he had had hives. He smoked five or six mild cigars daily, but used no liquor. The bowels were constipated. Meats and breadstuffs agreed with him, but not potato; while onions and boiled cabbage caused great trouble. As to the last two items, it may be said that there is no reason why a civilized human stomach should be expected to digest such fodder, as it is only fit for a herbivorous animal not used for yielding milk. In the past history there were the following points of possible significance: Dumb ague twelve years previously, a blow in the stomach in boy-

[1] Paper presented to the Section of Ophthalmology, Otology, and Laryngology of the Buffalo Academy of Medicine.

hood, a dyspeptic father and uncle, former habits of eating late in evening and of using tea to excess, long since abandoned.

Having heard much of eye-strain, this patient had consulted an ophthalmologist, who found some minor refractive error and had corrected it, but he had wisely informed the patient at the outset that the digestive trouble was probably of independent origin. Although the history of relief of pain on eating was characteristic of hyperchlorhydria, my effervescence test was negative, and two examinations of the stomach contents showed a mere trace of HCl by the Boas reagent, there being too little for a quantitative analysis. There was no evidence of organic disease of heart, liver, kidneys, etc., and the gastric area was normal by auscultatory percussion. Under appropriate treatment, including hydrochloric acid, strychnine, arsenic, and quinine, not all at one time, the patient improved, but left the city before he was quite well, and later made a good recovery under the care of another physician.

In citing this case as a type, I do so only in a clinical sense. Apparent eye-strain, or at any rate an uncorrected refractive error, may coexist with almost any form of digestive trouble, organic or functional. The majority of digestive cases are those of diminished hydrochloric acid secretion, usually attended by more or less atony of the gastric and intestinal muscles. Miss G——, whose eyes had been unavailingly corrected, so far as the gastric condition was concerned, complained especially of gas formation. Miss K——, on the contrary, was hyperchlorhydric. In this connection it should be stated that symptoms are of very little value in making a diagnosis of gastric conditions, but that physical, and often chemical, investigations must be made. Thus the oculist, or any practitioner, who decides as to the nature of a gastric condition, or who declares it a reflex expression of some other condition, without making or having made a thorough examination, is certain to make many mistakes. This is equally true of the practitioner who guesses at the state of any organ of the body, and it applies forcibly to the digestive specialist or general practitioner who fails to refer patients for examination of the eyes, whenever there is a reasonable suspicion of a visual defect. As there are so few persons with normal vision, I believe that the only safe rule is that every individual should be submitted to the oculist for examination several times during his life.

Occasionally one finds a case in which the gastric symptoms are not very marked, and in which reflex from eye-strain is suggested, but which proves to be of entirely different nature. A month ago H——, a man aged 35, consulted me complaining mainly of frontal

headache, more marked in the afternoon. He had the corrugated brow that sometimes indicates a reflex contraction due to eye-strain, and my first suggestion was that he should consult an oculist. He replied that two years before he had gone to an oculist, who had told him that his whole trouble was eye-strain, and had fitted him with glasses, but his trouble had not abated. A few months ago he visited another oculist, less enterprising but broader-minded, who declared him to be free from refractive error. Examination showed that he had atonic dilatation of the stomach, with reduced hydrochloric acid. He is now well, the headache which had resisted the attempt at correcting a supposititious refractive error yielding in three days to hydrochloric acid. A number of essentially similar cases might be cited.

Often it happens that while a genuine refractive error exists, its correction has no influence on the digestive symptoms, and the latter may not be due to gastric so much as to intestinal or hepatic trouble. A patient recently fitted with lenses had gastric subacidity due to chronic colitis, and is now well after treatment mainly directed toward the bowel. Miss S——, who had marked astigmatism of one eye, corrected by a Rochester oculist, came from a town between Rochester and Buffalo to consult me for a "nervous dyspepsia." Now every dyspepsia which is not the symptomatic expression of an organic lesion is nervous, and the term "nervous dyspepsia" ought not to be used as the name of a disease. It means nothing except that a person is nervous and is dyspeptic. If a person is dyspeptic for any length of time without being nervous, he is a moral hero. This "nervous dyspepsia" consisted of a dilated stomach, a movable right kidney, probably a colitis, a uterine prolapse, and some ovarian trouble whose exact nature I did not learn from the gynecologist. Imagine the futility of treating such a case as eye-strain. S. McJ——, also referred to me after refraction and correction by an ophthalmologist, proved to have hepatic sclerosis; the liver, outlined by auscultatory percussion, extended from the lower border of the fifth rib to the eighth space, whereas it should have extended from the fourth rib to the costal arch.

It would be interesting to amass statistics regarding the kind of ocular defect most frequently coincident with pneumogastric functional disorder, but an attempt to do so has convinced me of its impossibility. That headache, nausea, etc., may be due purely to uncorrected visual error is certainly true; that dyspeptic symptoms of considerable duration are often relieved by attention to the eyes alone is as certainly not true; that too much stress has been laid

on the theory of eye-strain is obvious; that a considerable number of oculists realize the fallacy involved is plain to me from the very fact that so many have referred such cases for digestive treatment. The very rarity of perfect eyes is a warning against accepting the theory of eye-strain as an explanation of digestive reflexes. It is also evident that lens-wearing patients whose eyes are supposedly corrected properly are quite as susceptible to digestive disturbances as those who do not wear glasses. In citing cases of gastric dilatation, hepatic sclerosis, etc., in this connection, I do so not with the understanding that any one has theoretically explained them as ocular reflexes, but to point out a serious error which would inevitably be charged to any oculist who should start out with the idea that eye-strain is an adequate explanation of gastric symptoms, in more than a small minority of cases. It is a common observation of internists that patients who have suffered from functional or organic disease of the vital organs often mention a keener state of the special senses, including sight, after they have been relieved. It would be absurd to claim that refractive errors could be relieved by attention to the function of the stomach or kidney. It is equally absurd to claim that the correction of ocular defects will, in general, remedy a pneumogastric reflex from the digestive organs, although there are undoubtedly a few instances in which eye-strain has been the last straw in depressing the general innervation of the digestive organs, which are controlled to so large a degree by the pneumogastric.

If you will allow the use of the term "eye-strain," not in the usual sense of an effort to correct a visual error, but just as we would speak of cardiac strain, or strain of any other normal part by overexertion, I am prepared to admit that eye-strain—in the latter sense—is a very frequent cause of acute gastric symptoms, such as nausea and vomiting. It has been claimed that sick-headache is always due to eye-strain. It is a safe rule to avoid the use of the words "always" and "never" in medicine, but sick-headache often results from a depression of pneumogastric function by ocular reflexes. The frequency of sick-headache in summer is, in my opinion, quite as much due to straining the eyes in brilliant sunlight for a long period as to the danger of fermentation in food on account of the heat. By the way, sick-headache is often considered to be a hyperchlorhydria. In the cases that I have examined, the chyme has been lacking in HCl and rich in fermentation acids, which practically always form if HCl is deficient. But purely dietetic errors, fatigue, prostration from heat, etc., are also common

causes of sick-headache. Scorchers' sick-headache is a very good example of the results of eye-strain, though other causes cannot always be excluded. The effort to fix the eyes on the road, while subject to constant vibration of the bicycle, the streaming past the field of vision of objects in the road, the brilliance of illumination on a sunny day and the rapid changes of illumination as in passing under the shadows of trees or of a picket fence, constitute an over-exertion of the extrinsic muscles, the ciliary and the iris, as well as a prolonged and marked stimulation of the rods and cones. Car-sickness is, in some persons, a closely analogous condition and due to the same detailed causes.

Having discussed the matter of eye-strain from the clinical standpoint, let us turn to a physiologic consideration of the relations of pneumogastric symptoms to reflexes from the sensory nerves. Most physiologists recognize nine senses, sight, hearing, equilibrium, smell, taste, temperature, touch, pressure, and muscular sensibility, the last being essentially an afferent registration of the force expended efferently through a motor nerve. Touch and pressure I believe to be essentially one sense. Nausea and kindred pneumogastric sensations may be considered to represent a partially evolved special sense, like the sensibility of the genital organs, the "besoin de respirer" of the pulmonic branches of the pneumogastric, etc. True pneumogastric reflexes of nausea, etc., are excited by no sensory impressions other than those of sight and equilibrium. This statement may require some qualification, as follows: Irregular excitation of the muscular sense usually is synchronous with nausea, but only because the equilibration is also disturbed. Similar *local* stimulation of the muscular sense does not occasion nausea. Temperature impressions, either of heat or cold, may be accompanied by nausea, but from the general effect of the change of temperature, not because the local sensation arouses pneumogastric reflex. Stimulation of almost any sense may occasion nausea by psychic translation. This is especially true of smell and taste, which thus act as sentinels of the alimentary canal. That the nausea is essentially psychic is shown by the fact that an identical odor or taste may cause nausea or be considered appetizing, according to circumstances. For instance, nitrite of amyl, in amount too small to cause direct physiologic effect, may cause nausea from an unpleasant association with sickness, while the same odor in a banana is thought agreeable. The volatile products of decomposition in human flesh are extremely nauseating, in cheese they may be considered appetizing, etc. A person nauseated at the odor of pus in an Estlander

operation may enjoy the flavor of boiled cabbage. Certain things are sickening because they are sweet, others appetizing. Similar instances might be multiplied almost indefinitely.

Why should the pneumogastric reflex of nausea be called forth by stimulation of sight and equilibrium? Before answering this question, let us see if these two senses are intimately connected. Our conceptions of right and left, up and down, forward and back, the cardinal directions of equilibrium, are jointly due to stimuli of the sense of sight and of the sense of equilibrium. While the center of equilibration is not definitely located and seems independent of the occipital visual centers, these two senses are intimately connected in the corpora quadrigemina and corpora geniculata. The anterior corpus quadrigeminum and the lateral corpus geniculatum receive visual fibers, and the other component of each ganglion receives equilibrial fibers. The visual and equilibrial ganglionic masses are intimately connected, and from both fibers pass backward to the cerebellum, which is the coordinating, or at least *a* coordinating, center, acting under the direction, so to speak, of messages from the ganglia of sight and of equilibrium. Visual stimuli not directly related to changes of direction do not cause nausea. In other words, it is a sensory disturbance along the line of equilibration that causes pneumogastric reflex, manifested by nausea.

The main question as to why nausea should result from disturbed sensations of equilibrium, whether received visually or mechanically, I am not fully prepared to answer. I will venture a tentative explanation. The stomach, by virtue of the inertia of its contents, and the liver by virtue of its own inertia and the fact that it is the only heavy organ so placed in the body that changes in its inertia can readily be appreciated, are admirably adapted to transmit sensations of equilibrium. Any afferent message which they transmit to conscious centers must be by the pneumogastric nerves, and the overstimulation of one function of a nerve of manifold functions is apt to be associated with sensations apparently representing the nerve in other functions. The objection will be raised that the organ of equilibrium is located in the semicircular canals of the internal ear, whose arrangement corresponding to the three prime Cartesian planes naturally suggests their use in determining direction. My own personal skepticism as to the function of the semicircular canals dates from a night ride in a sleeper. Not being able to sleep, I contemplated, among various other things, the beautiful arrangement of these canals by means of which I could feel the

direction in which we were going. In the morning I found that we were going in exactly the reverse direction. This experience was the beginning of some studies, or rather observations, on equilibration. In elevators, street-cars, etc., or on a boat when the water is rough, it is easy to locate at least part of the sensation of direction in the liver. I do not know of any experiments by which we can say positively that the semicircular canals have nothing to do with ideas of direction, but it is significant that nausea or the feeling of disturbed equilibrium does not arise from violent agitation of the head alone, but that it does arise from similar agitation of the trunk, while the head is held still. Sea-sickness or car-sickness may be relieved by the recumbent posture, in which the liver is kept quiet, and elevator nausea by holding the hands over the upper abdomen or by leaning backward, so as to steady the liver. In locomotor ataxia, the frequency of girdle pains and of pain perhaps referable to the pneumogastric is significant, and there is no well demonstrated involvement of centers connected with the eighth nerve which supplies the semicircular canals. Even in Ménière's disease, lesions in the semicircular canals are rather doubtful, as reports of autopsies made with preconceived ideas of the equilibratory function of these canals usually limit the lesion observed to "congestion," which is notoriously subject to the personal equation or liable to be due to post-mortem changes.

MEMBRANOUS COLITIS.[1]

BY JOHN A. ROBISON, A.M., M.D., CHICAGO, ILL.

I have chosen for consideration a disease which is said to be comparatively rare, and the literature concerning it is meager. Its chronic course, interesting complex of symptoms, and almost intractable treatment, demand more than passing notice. Allbutt divides membranous colitis into two distinct varieties—dyspeptic membranous colitis, and secondary membranous colitis. This classification is faulty; if dyspepsia is a causal factor of the disease, the colitis must also be secondary. I would divide them into: (1) Primary, due to enteroptosis, to bacterial fermentation, to infection, to lack of digestive ferments, to intestinal calculi; (2) secondary, due to dyspepsia, to traumatisms, and grave cachectic conditions, septic and infectious diseases, and cancer.

Stiller[2] mentions congenital descent of the transverse colon as one of the causes of colitis, and Einhorn[3] gives as a cause, prolapse, particularly of the right portion, of the transverse colon, due to relaxation of the colico-hepatic ligament. Dilatation of the stomach is almost necessarily accompanied by descent of the colon. I published the record of a case several years ago where the transverse colon had descended to the symphysis pubis. The enteroptosis occurs from a variety of causes, and it is easy to understand how a prolapsed colon would soon be the seat of inflammation. If the digestive enzymes and secretions are defective, or inefficient, bacterial action is increased, and this becomes a primary cause of the development of pathological conditions in the colon. We do not know the bacteria concerned in this process, nor do we know the normal limit of their action, but the clinical symptoms of disease of the colon lead us to infer that bacteria are the cause of many cases of colitis.

That the colon may be the seat of infection no one may question. In tropical climates cholera, sprue, and dysentery are common; but these, of course, cannot be classed as cases of membranous colitis, and thus far we have not been able to find in the membranes the infective organism. That the microorganisms of various infective diseases may produce membranous colitis I believe to be true. I have had under observation a case of membranous colitis the result

[1] Presidential address, Chicago Society of Internal Medicine, 1900.
[2] *Arch. f. Verdauungskrankh.*, ii, p. 285, 1896.
[3] *Medical News*, Sept. 19, 1896.

of influenza, the patient prior to an attack of influenza in 1890 never having suffered from any intestinal disorder.

It requires no argument to show that dyspepsia, trauma, and grave cachectic conditions lead to secondary membranous colitis.

The patients who are subject to this disease are usually over 20 years of age; the majority of cases occur in women. Few are seen in hospital practice, as they are seldom bedridden. They are generally neuropathic individuals, small-boned, muscular, and in fair nutrition, unless the disease is extremely severe, so that malnutrition is marked. The face is generally pale, but easily flushed, the eyes bright, conjunctivæ somewhat pale; lips and mucous membranes are often bluish. The expression of the face is generally anxious, and indicative of one who suffers pain. The skin is subject to eruptive diseases, urticaria, eczema, and so forth. It is often moist, and sometimes pallid, especially after frequent and painful bowel movements. The pulse is generally normal, and there is seldom fever, unless attacks of localized peritonitis, or enteritis, occur. Such patients frequently complain of orthopnea, and are incapable of prolonged muscular effort. They are generally individuals who are mentally active, and the muscular movements are quickly executed. Insomnia is a marked feature of the disease, especially during the forepart of the night, and the sleep of early morning is generally disturbed by frequent bowel movements. Hence such patients have the appearance of not having had sufficient sleep. Neurasthenic symptoms are common, and they frequently are the subjects of peripheral neuritis. One patient suffered extremely from sharp, lancinating pains in the heels, with congestion and pain beneath the finger-nails, which symptoms were relieved by critical discharges. The tongue is generally dry, and covered with a thick white, or brown, coating; sometimes it is cracked and bleeds easily, and the gums are spongy. The breath is generally foul, and almost fecal in odor, sometimes urinous, especially in the morning. Sometimes there is a peculiar metallic or a persistent sweetish taste in the mouth. As a rule the appetite is good, and thirst somewhat abnormal. Nausea is a frequent symptom. Vomiting seldom occurs. The stools are generally most frequent in the early morning, such patients often having movements before breakfast. They may vary in frequency from ten to forty per day. The stools are thin, watery, sometimes bran-like, very foamy. At times large quantities of mucus or membranous shreds are present. Before the expulsion of these membranes the patients often suffer extremely from rectal tenesmus, which is relieved by the discharge of the membranes.

Pain in the upper abdominal area is frequent, and often occurs soon after taking food. Sometimes this pain is described as a griping, contracting feeling, as though the colon was gathering itself into a knot, and this pain is generally succeeded by a hurried movement of the bowels. An examination of the abdomen frequently discloses more or less tympany. There is generally extreme tenderness along the outline of the colon. In cases of enteroptosis there is a dragging sensation, with pain in the lower abdominal zone. These pains are increased by pressure and generally relieved by the application of heat. Intestinal peristalsis is generally active, and the peristaltic movements can be appreciated by palpation. The urine is generally scanty, highly colored, the specific gravity high, and it frequently contains indol. Renal insufficiency is a marked symptom of membranous colitis, and I wish to emphasize this observation. Occasionally there is albuminuria, transitory in form. As a rule, the examination of urine is negative except as regards quantity. The blood, in cases of extreme gravity, is leucemic in character. The venous congestion under the finger-nails is more intense when there is much tympany present.

Chemically the membranes that are expelled consist of albumin. There is no fibrin, or organization of any kind. The membranes that I have examined have been the carriers of the bacillus coli communis, and it is a question what rôle they play in the etiology of the disease. Frequently blood is found upon them, generally fresh in appearance. The discharges have a very irritating influence on the rectum, producing extreme tenesmus, some observers having noted that there is a prolapse of the bowel through the sigmoid flexure into the rectum. Extreme bodily fatigue is a marked symptom, many of these patients being almost bedridden for years. The act of defecation is often painful. Allbutt notes a case where a patient sat on the water-closet a couple of hours suffering from agonizing, griping pain before a motion, consisting of enough blood and mucus to fill a half-pint measure. She often used a morphine injection before defecation, and twice fainted in the water-closet from the severity of the pain. Women often have amenorrhea or pelvic trouble. One of my patients was cured by a gynecologist relieving a uterine retroversion. Left salpingitis, or ovaritis, is a painful complication often present.

The discharge of membranes may occur at intervals, and the patient enjoy fair health during the interims. Business cares or domestic worries aggravate the cases, while a life of ease is beneficial. As already mentioned, this disease occurs almost exclusively

in neuropathic individuals, hence there seems to me no doubt that a disturbance of a nervo-secretory balance may generally be the underlying cause of the affection.

Prognosis.—The disease has a low rate of mortality, but it is almost invariably a chronic affection. The prognosis must be guarded.

Treatment.—A positive diagnosis of enteroptosis, as a cause of membranous colitis, would afford a reasonable ground for attempting to remedy the prolapse by surgical means. A sagging colon cannot be corrected in any other manner. Medicinal treatment is of no avail. Dilatation of the stomach with accompanying prolapse of the colon has already been treated successfully surgically. If dyspepsia of the gastrointestinal tract is the cause of the disease, it should be appropriately treated. If the disease is supposed to be of bacterial origin, then intestinal antiseptic treatment by colonic flushing, and the administration by the mouth of intestinal antiseptics, with the requisite hygienic and dietetic treatment, are indicated.

Diet.—Occasionally it is necessary in severe cases to restrict the diet closely, but in the majority of cases the diet should be ample, varied, and digestible. These patients require nourishing diet, and the food should be well cooked and daintily served, that the appetite may be tempted. In all cases it is well to exclude rich soups, gravies, made dishes, excessive sweets, fruits and vegetables with indigestible seeds or fibers, and greasy meats, as well as pastries. Claret or the wines which have tannin in them may be served with the meals.

Hygiene.—Of first importance is the protection of the intestines by wearing the entire year a flannel abdominal bandage. Chilling of the surface of the body causes intestinal congestion, and the catarrhal inflammation is increased. Every means which increases bodily vigor should be employed. The patient should take proper exercise in the open air and sunshine; physical fatigue, while easily induced, does not have so deleterious an influence as worry and mental fatigue. Change of scene induces rest of mind, and a sojourn at some of the sulpho-saline mineral springs often inaugurates a period of improvement. Freedom from care is an essential element of treatment.

Renal Insufficiency.—As already mentioned, renal insufficiency is a frequent accompaniment of this disease, doubtless owing to reflex irritation and the fact that there is a great deal of elimination of water through the intestinal tract. When the kidneys fail to eliminate properly the patients suffer more from pain, peripheral neural-

gias or neuritides, headaches, lassitude, nausea, foul breath, etc. This condition calls for the employment of saline diuretics, such as Semmola's mixture, mild salt waters, alkaline waters, chalybeate waters, and an occasional hot-air bath.

Bowel Flushings.—When rectal irritation is present the rectum should be washed out with hot water—that is, a temperature of 100° F. In these flushings the soft-rubber rectal tube should be used, as much injury may be done by the use of the rigid tubes. When the patient is suffering from the expulsion of the membranes, the rectal flushings give great relief. Except in severe cases high hot colonic flushings with one-per-cent solutions of boric acid and sodium chloride are very beneficial. These high flushings must be carefully given, by the physician, nurse, or some one specially trained, as undue tension of the bowel must be guarded against. In the secondary forms of the disease it is true that the membranes seldom appear in the stools, but the colonic flushings are just as beneficial as in the forms where the membranes are expelled. Letcheff recommends hot solutions of 1 to 1000–2000 of nitrate of silver.

Since writing the above I have used with great benefit a solution of methylene blue, one grain to a quart of water, by rectal injection, the patient reclining and the injection given high. In using this great care is necessary, on account of the dye staining so readily all clothing.

Medicinal Treatment.—The medicinal treatment of the disease consists in the avoidance of opiates, astringents, and irritating drugs, and the intelligent employment of the so-called intestinal antiseptics. When defective digestion is present, the administration of partially digested nutriments, or the administration of the digestive ferments or hydrochloric acid, as indicated, and in neurotics the administration of nervines.

The antiseptics which have given me the best results have been bismuth salicylate, salol, betanaphthol, thymol, benzoic acid, menthol, guaiacol carbonate, and creosote. None of these remedies are irritating, and they can be given in varying doses. The medicinal treatment naturally is symptomatic, and must be varied to suit the individual cases, and this is especially true when neurasthenic symptoms are present.

HEPATIC ABSCESS.

BY JOHN G. WISHARD, M.D., INDIANAPOLIS, IND.

It does not require a very extensive experience in the treatment of hepatic abscess to convince one that an early diagnosis aids in bringing about a successful termination of this grave malady. I say grave, for a collection of pus in any abdominal organ, be the quantity great or small, is always a serious affair, and especially is this true of an organ composed of friable tissue like the liver, and one upon whose healthy function the welfare of the individual is so dependent.

I am not unmindful of the fact that the French surgeons with the army in Algiers take a much more hopeful view of these cases than do the English army medical officers living in India. The variety of the abscess in both places is tropical, and the treatment is practically the same, yet the results are better in the hands of the French than the English. It is not hard to believe, however, that the climate in northern Africa is much more salubrious than that of Bengal, and the influence of climate upon these cases, as I shall presently show, is always marked.

I do not know how frequently hepatic abscess is met with in this part of Indiana, but the records of the city hospital in Indianapolis for the past three years fail to show a single case. Possibly in past years, when malaria and dysentery were more common, suppurative hepatitis in this region was more frequent.

An abscess of the liver may be defined as a hepatitis terminating in suppuration, due probably in all cases to microbic invasion, and in most cases to infection by way of the portal vein.

Before taking up the causes that may produce hepatic abscess it may be interesting to notice for a moment the reasons why the liver may easily become the seat of suppuration. These are the anatomical structure of the gland, its location—*i.e.*, its proximity to the intestinal tract—and its function.

When we consider the anatomical structure of the gland, it is easy to understand how quickly a lobe may be broken down when attacked by a suppurative process; the proximity of the organ to the intestinal tract makes it possible for septic matter to work its way, by means of the network of blood-vessels, into the spaces between the cells, there to remain and multiply until a pus cavity is formed.

When an inflammation appears in other parts of the body, a leg

or an arm for example, we are able to immediately give it rest, and thus give it the best possible chance for recovery; but not so with the liver, for although congested, inflamed, and even filled with pus, it must carry on the part nature has assigned it.

This paper is based on fifteen cases of so-called tropical abscess seen at the hospital in Teheran, Persia, from 1893 to 1899, and while the list is not a long one, yet it may contain some cases presenting points of interest and practical value. Abscess of the liver is almost, if not always, a secondary disease—*i. e.*, caused by some previous trouble. Many authors and writers classify these causes into primary and secondary, and also idiopathic and traumatic, hoping to simplify the diagnosis, but for clinical purposes these classifications are of no special use, since we simply have an abscess to deal with, and we must treat it as we would treat an abscess in any other part of the body — by incision, evacuation of the pus, and subsequent drainage. We must not forget, however, the friability of liver tissue, and also the relation this great gland bears to the digestive tract. Among the many causes which produce abscess are suppuration of the intestine due to dysentery, or to foreign bodies, such as needles, pins, fish-bones; pyemia; traumatism, such as a blow over the liver or a fall; stricture of the rectum; echinococci; and even gonorrhea is said to have produced it. Climate is a potent factor in modifying and intensifying the course of the disease, and probably in producing it as well.

Inhabitants of the hot, moist coast region are particularly subject to it, especially if given to gluttony and the excessive use of alcohol. Then, again, the sudden change from the hot regions near the coast to the cold of the highlands is not infrequently followed by abscess in those cases where hepatitis already exists.

An Austrian, admitted into our hospital in the spring of 1894, had lived for a year or more in one of the hottest and most unhealthful districts near the coast. Having business in the Peruvian capital he made the journey overland by stage and caravan. As the road leads over the mountains, covered even in the summer-time with ice and snow, the change from the hot, moist air of the coast to the Siberian cold of the highlands soon became felt. The liver, probably enlarged, suddenly became very tender and somewhat swollen. When I first saw him the tumor was prominent. He was seen by an attaché of the German legation in Persia, who confirmed the diagnosis, but thought it too late to operate. In this I quite agreed. The patient died the next day, and a post-mortem examination showed that almost the entire organ was involved.

The clinical history of these cases cannot be better illustrated than by describing a case that came under my care a short time afterward. The man was about 28 years of age, by occupation a teamster. He was admitted into the hospital suffering from what was thought to be typhoid fever. His tongue was heavily coated, pulse rapid and weak, temperature above normal, with extreme mental distress. There was an indefinable tenderness over the entire abdomen, and although the liver was enlarged no other trouble was apparent. There was no jaundice. He was put on ipecac for the dysentery, and from time to time rather large doses of quinine were given; although he was kept quietly in bed, he grew worse instead of better. I then determined to search with an aspirating needle for an abscess, which was located with considerable difficulty. Later I operated by a method which I shall presently describe, and he made an uninterrupted recovery. Had he come under observation a month later we should have found an abscess easy to locate, but beyond the possibility of cure.

Last year I saw one of these advanced cases in a tailor, aged 45 years. He had slept for months in his shop, which was in a very unhealthful location. When I first saw him he had a large fluctuating tumor, evidently in the right lobe. The pus being near the surface, and consequently giving him a great deal of pain, I freely incised the sac and drew off a large quantity of pus. The relief from pain which this operation gave him was greatly appreciated. He died after some weeks.

As soon as pus begins to form in the liver the patient becomes unhealthy in appearance, the pulse is rapid, and the temperature is usually above normal. In fifteen cases seen by me, fourteen were in men. If the abscess is deep there is little pain, but if it is superficial the pain is very severe. Often just under the right shoulder there is a dull ache. Jaundice is rare. As the abscess advances the symptoms become more marked; the right rectus muscle becomes rigid, and there are frequent rigors, often complicated by both vomiting and purging. If we wait to get fluctuation the time for successful treatment is probably past.

It is necessary to differentiate abscess from distended gall-bladder, hydatids, cancer, pneumonia, etc. The introduction of an aspirating needle will often clear up the diagnosis, and if carefully used can do no harm. Often a puncture in cases of enlarged livers, where no pus is found, seems to do good. The general appearance and odor of pus from the liver is peculiar, and once seen will ever afterward be recognized.

The prognosis must always be guarded, and yet if the general health has previously been good, the patient young, and the abscess in the left lobe, the prognosis may be considered favorable; unfortunately two-thirds of all cases are in the right lobe. Sixty per cent of the cases I saw died. Several of these might have been saved if we had seen them earlier. An abscess in the liver may terminate by emptying its contents into the lung, peritoneum, pericardium, pleura, the intestine, or externally.

A case discharging through the lung came under my care some years ago. A miller, aged 25, came into the hospital with a fluctuating tumor in the right lobe of the liver, which soon burst through the lung. For weeks he coughed up large quantities of pus mixed with blood. The suffering of the patient was severe, and after the first week the discharge became so foul-smelling that we were compelled to isolate the patient. During the night, when the lungs would become filled with the discharge, he would have the most violent fits of coughing, and I hardly hoped for his recovery; and yet with the coming of spring he began to improve, and later made a complete recovery. I saw him occasionally afterward; he had grown quite well, and had no return of his trouble.

Fatal cases that have burst into the peritoneal cavity, pericardium, and even in two different directions, have been reported by those having had experience in these cases. Only one of the fifteen cases that I saw emptied itself through the bowel. He was a man about 50 years of age, and at the same time I saw he had a good-sized tumor over the region of the gall-bladder. He was suffering, and was rapidly losing health. He had been in the habit of taking a considerable quantity of brandy with his meals, and previous to coming under observation had dysentery. A simple external examination of the tumor so exhausted him that he had to remain at my house for several hours before he could be removed to his home by carriage. I was expecting to operate, but during the night he went to stool, and a large quantity of pus suddenly came away and the tumor disappeared.

The bursting of the abscess into the lung or bowel followed by a happy termination is only a chance, and the prudent physician will not wait for such a result, but will early open through the abdominal wall, and evacuate the contents of the cavity.

There is a class of cases where the abscess is small and deep. In such cases it is recommended that poultices and hot fomentations be applied, thus helping the abscess to point externally. There may be cases where such a course is justified, but they must be rare

indeed. I hardly think it pays to resort to this slow method of treatment, for time is an important consideration.

In all operations for evacuating a pus cavity in the liver, the question of whether or not adhesions have formed between the organ and the abdominal wall is important. If adhesions have formed, then a simple incision is the quickest, best, and easiest way of dealing with the condition. If adhesions have not formed, it is necessary to shield the peritoneal cavity from the entrance of the pus while the contents of the abscess is being emptied. There is no way of telling certainly from an external examination whether or not adhesions are already formed, and consequently there are six usual methods of opening the abscess—all having in mind the protection of the peritoneal cavity while the pus sac is being drained: (1) Repeated aspiration. (2) Puncture by trocar, leaving cannula in until firm adhesions have formed, and later the enlarging of the opening and the introduction of a drainage-tube. (3) Openings by repeated burnings with thermocautery or caustics. (4) Incision of abdominal wall and packing with gauze until adhesions are formed. (5) Direct incision into the abscess; this can only be done when the abscess is near the surface and adhesions are certain. (6) Incision and drainage, and suturing the liver to the abdominal wall.

Any of these methods might under certain circumstances be practiced, but a combination of the first and last I believe to be the best. To be more explicit, as soon as an abscess is suspected introduce an aspirating needle, and if pus is located remove as much as possible by means of the aspirator. By this simple and harmless method we will have satisfied the patient that an abscess exists, and he will more readily consent to an operation; we will have seen the character of the pus, learned something possibly of the size of the cavity, and gained a little time in which to prepare the patient for operation. Having then decided to operate, the patient is anesthetized—although it may be done with cocaine—and under the usual antiseptic precautions an incision is made through the abdominal wall. If adhesions are found a simple incision is all that is required, but if adhesions have not formed, then this method may be followed: Having exposed the liver, introduce the aspirating needle into the abscess, and draw off as much of the contents as possible. This will prevent a sudden rush of pus when the cavity is incised, and consequently remove just so much chance of pus entering the peritoneal cavity. It also relieves all tension and lessens the danger of injury to the friable liver tissue. When pus ceases to flow through the aspirating needle, a knife is made to follow the needle into the cav-

ity while firm pressure is made about the incision by an assistant to prevent the discharge entering the peritoneal cavity. As soon as the opening is large enough the finger is introduced into the cavity, and used as a hook, the liver is lifted and pressed firmly against the abdominal wall, where it is clamped by the use of artery forceps until it is stitched with catgut, when the forceps are removed.

It is of importance that a good-sized drainage-tube be used, and it should be introduced deep into the cavity. Two or three days later, when adhesions of some strength have formed, a search should be made for other abscesses, as they are not infrequently multiple. By pressure they can usually be made to burst into the cavity having the external opening.

Another method of opening these cavities with trocar and cannula, leaving the cannula in until adhesions are formed and later introducing through the cannula a drainage-tube, has some features to commend it. But the great objection to it is that the exit for the pus must necessarily be small, thus preventing the thorough cleansing of the cavity. It may be done, however, without an anesthetic, and is a much easier and quicker means of evacuating the contents of an abscess.

The advantages of a free abdominal section are better drainage, the control of hemorrhage, and a better view of the field of operation. If by chance a little discharge should enter the peritoneal cavity, it can by careful sponging be removed. It is said that the pus from a hepatic abscess is sterile. Whether or not this is true, it is certainly unwise to take risks.

Much depends in these cases upon the after-treatment. For the first few days the cavity should be washed out every few hours, and then daily. For this purpose nothing is better than a solution of permanganate of potassium. It causes the cavity to shrink, and it certainly has a marked effect in reducing the quantity of pus. The administration of bitter tonics and a pill containing ox-gall seems to do good. Special attention should be given to the diet, which should be restricted, relieving as much as possible the work of the liver, and to the temperature of the room, which day or night should vary as little as possible.

In idiopathic and traumatic cases, which are the only varieties of abscess which can in any sense be considered local affections, a slow and tedious recovery may be expected—one, two, or three months. It may even take longer than this, for the liver is often slow in resuming its function.

EXAMINATION OF THE STOMACH CONTENTS WITH RESPECT TO FERMENTATION PRODUCTS AND ABNORMAL CONSTITUENTS—BEDSIDE TESTS.[1]

BY FREDERICK A. McGREW, A.B., M.D., DAVIS, ILL.

V. FERMENTATION PRODUCTS.

Lactic Acid Present.....(Uffelmann's method).
Lactic Acid (.....method).....(°).....grms.
.....per cent. .....parts per 1000.
Fatty Acids.—Butyric.....Formic.....Acetic.....Amount.....
Organic acids and acid salts (Töpfer's method).....(°).....grms.
.....per cent. .....parts per 1000.

Although hydrochloric acid is the normal acid of the stomach and the only one secreted by the gastric mucous membrane, adventitious acids may be present in gastric contents. These are organic acids, and may have been taken in with food, since all parenchymatous animal tissues, especially muscle, contain them, or they may have been produced within the stomach by the bacterial decomposition of certain food substances. Lactic acid is the most important of these organic acids; it exists as sarcolactic acid in a free state in muscle plasma, and it is a product of the fermentation of dextrose; hence it is present frequently, and sometimes in sufficient quantity to occasion considerable disturbance.

Dextrose is found in the healthy stomach, but in very small quantity. As elsewhere stated, the product of normal salivary digestion of carbohydrates is chiefly maltose. But a stomach containing much mucus is very active in converting cane-sugar into dextrose, and dextrose readily undergoes fermentation with lactic acid as a product. Thus a stomach in a state of inflammation contains the two factors which produce lactic acid in quantity, namely, the mucus to convert cane-sugar into dextrose, and an increased number of bacteria which rapidly decompose the dextrose and produce lactic acid. Lactose, the sugar of milk, likewise undergoes lactic acid fermentation.

Organic acids are probably present during normal gastric digestion, but in minute quantity. It is also probable that those usually present are not harmful unless the amount be sufficient to cause a degree of hyperacidity. Large amounts of lactic or acetic acid, if properly diluted, may be swallowed by a healthy person with impunity. But the same quantity produced within the stomach would cause hyperacidity and gaseous distention, indicating the catarrhal inflammation and swarming bacteria responsible for their presence.

[1] This is the last of a series of four papers under the title "Examination of the Stomach Contents," the first of which appeared in the October MEDICINE.

For practical purposes it will be sufficient to determine the presence and quantity of lactic acid.

Qualitative Test for Lactic Acid.—Add a drop of carbolic acid, 95-per-cent, to a drachm of distilled water in a test-tube. To this solution add drop by drop a sufficient quantity of one-per-cent solution of liq. ferri perchloridi, U. S. P., to produce a clear amethyst-blue color. To this reagent (Uffelmann's) add twenty to thirty drops of filtrate of stomach contents. If lactic acid be present the amethyst changes to greenish-yellow.

This test is sensitive to a trace (0.01 per cent, or 1 part in 10,000) of lactic acid. To make the test absolutely reliable, shake a drachm of filtrate with a larger quantity of ether in a test-tube vigorously for a few minutes. Let the ethereal and watery layers separate, then pour off the former, evaporate the ether, and test the residue for lactic acid as above described.

Quantitative Test for Lactic Acid.—The following experiment will demonstrate the value of the method:

No. 11, lactic acid solution. Add about five drops of lactic acid to two ounces of distilled water. Titrate five cubic centimeters of the solution with volumetric solution of soda (No. 10) to ascertain the exact acid strength, using phenol-phthalein as an indicator.

Experiment 11.—To five cubic centimeters of lactic acid solution (No. 11) and five cubic centimeters of HCl solution (No. 4) in a burette add a larger quantity of ether, and shake the mixture vigorously for a few minutes. Let stand for a moment until the liquids have separated, then run out the watery and ethereal solutions in different test-tubes. Set the tube containing the latter in warm water to hasten the evaporation of the ether.

Test the watery solution for hydrochloric and lactic acids—the former but not the latter should be found.

Test the watery solution for its HCl strength; it should be 0.2 per cent.

When the ethereal solution has nearly evaporated, and has become thick, add sufficient water to make the solution up to five cubic centimeters, and test it for its lactic acid strength. It should correspond to that of solution No. 11.

To five cubic centimeters of stomach contents in a burette add a somewhat larger quantity of ether, and shake vigorously for about two minutes. When the liquids have separated, run out the watery and ethereal solutions—the former into an evaporating dish, and the latter into a test-tube which should be set in warm water to hasten evaporation.

Test the watery solution for free HCl, using dimethyl-amido-azo-benzol as an indicator. This gives the true free HCl strength, since lactic acid has been eliminated.

When the ether has evaporated from the test-tube add sufficient water to make the solution up to five cubic centimeters. Titrate with soda solution (No. 10) to ascertain the acid strength in comparison with 0.2-per-cent HCl, in terms of which it is recorded.

Since ether also holds the volatile acids (acetic, butyric, etc.) in solution, should these be present they must be eliminated by boiling the filtrate half an hour, if it is desired to separate the lactic acid only. In order to disclose the presence of volatile acids, boil a little filtrate in a test-tube, and hold blue litmus paper in the fumes at the mouth of the tube. If the litmus turns red volatile acids are present. But inasmuch as the quantity of organic acids rather than that of lactic acid alone is the matter of importance, elimination of the volatile acids lessens rather than increases the practical value of the analysis.

VI. ABNORMAL CONSTITUENTS.

Mucus.....q.	Pus.....q.
Bile .....q.	Blood.....q.
Yeast.....q.	Sarcinæ.....q.
Oppler-Boas b.....q.	Common bacteria per c.c.
Tissue fragments.	

Mucus.—The stomach contents are always mixed with more or less mucus. During fasting hours the inner wall of the stomach is coated with a thin layer of mucus. During digestion certain cells secrete mucus, which mixes with the food, and through the inverting ferment it contains changes cane-sugar to dextrose. Mucus also reaches the stomach with the food, around which it is wrapped in the mouth, throat, and esophagus as a lubricant. Some also is independently swallowed with the salivary secretion. The presence of mucus in small quantity therefore cannot be considered abnormal It is only when the quantity found in stomach contents exceeds that which may be charged to normal sources that it becomes of diagnostic and pathological significance.

Mucus does not always present the same gross appearance in stomach contents. It may, together with the peptones present, give a general tenaciousness to the mass of chyme. It may enfold the larger food particles. It may appear in the substance and on the surface of the contents as stringy, tenacious islets, which are quite frequently tinged golden or greenish-yellow by bile pigment. An excessive quantity of mucus not only neutralizes the normal acid, but interferes with digestion by covering the food particles with an alkaline and more or less difficultly permeable coat. Mucus excess

ordinarily occurs in those chronic catarrhal conditions in which the HCl is diminished, but may also be present in hyperchlorhydria.

Bile, never normally present in the stomach, appears there in conditions especially marked by a disturbance of the propulsive action of the stomach and duodenum. It discolors the contents a golden-yellow or greenish-yellow. The amount varies greatly; in "bilious" vomiting the bile, at first mixed with food, later in large quantity with watery mucus, exhibits a characteristic odor and is dark and greenish in color.

It may in rare instances be desirable to apply a chemical test for bile. Gmelin's test for bile pigment is as follows: To about a drachm of filtrate of stomach contents in a test-tube add half as much nitric acid ("using by preference, if possible, an acid that has become reddish by exposure to the sun's rays"—Haines). The tube should be inclined at an angle of about 45 degrees, and the acid added drop by drop. If biliary coloring matter is present a play of colors is developed, beginning with green, then blue, violet, red, and dirty yellow.

Pus appears in the stomach during the course of a purulent gastritis, or as the consequence of the rupture of an abscess through the wall into the viscus. When suspected, the diagnosis may be confirmed by the appearance of the characteristic pus cells under the microscope.

Blood may appear as a constituent of stomach contents in ulcer, cancer, traumatisms, corrosive poisoning, cirrhosis of the liver, some acute infectious diseases, as smallpox, and in certain blood states, as scurvy, leucemia, pernicious anemia, acute yellow atrophy of the liver, and purpura hemorrhagica. It occasionally occurs as one of the manifestations of hysteria. Of all the above conditions the two first named give most importance to the gastric hemorrhage which accompanies them.

The gross appearance of blood from the stomach depends upon the rapidity and amount of the hemorrhage, and whether it is mixed with food or not. If the hemorrhage be very rapid and profuse, as sometimes happens in ulcer, part of the vomited blood may be bright red. For the most part, however, blood from the stomach is clotted and brownish-black in color. If the amount is small and comes from the slow oozing of capillaries, as is likely in cancer, it clots in smaller masses, which are subsequently disintegrated and appear as "coffee grounds" in the vomit.

Guaiac Test.—The guaiac test may be used in demonstrating the presence of blood, unless it has been thoroughly disintegrated. Shake together in a test-tube a little tincture of guaiac and twice

as much old spirits of turpentine (the latter should be yellow from exposure to the air). Allow a little of the suspected fluid contents to run down the side of the tube. If hemoglobin is present a bluish coloration will appear at the plane of contact.

Hemin Test.—If the blood has been decomposed, as in "coffee grounds" vomit, place some of the "grounds" in a watch-crystal and evaporate until dry. Add a pinch of salt and a drop or two of glacial acetic acid and again evaporate. Under the microscope characteristic rhomboid-shaped crystals of hemin will be seen.

Yeast cells are often found in the stomach contents. Unless in extraordinary amount they are of little importance, since they occur in the stomach of healthy individuals. They are the active agents of alcoholic fermentation and are found in greatest number in conditions which favor abnormal fermentative processes. Under the microscope they appear as round or ovoid cells of various sizes, either strung together in chains, or with a little bud formed on one side of isolated parent cells.

Sarcinæ often grow on the contents of the stomach when there is impaired motility and delayed digestion. The parasite appears under the microscope in groups of four or multiples of four, each segment resembling a ball tightly wrapped with a string which crosses it at right angles.

The *Oppler-Boas bacillus* is a long and non-motile microorganism, found in stomach contents in cases of cancer. Hemmeter and his assistants have examined fifty cases of gastric cancer for the bacillus, and succeeded in finding it in every case but one. In eighteen cases of gastric ulcer they did not find the bacillus in a single case. Kaufman, referred to by Hemmeter, found the Oppler-Boas bacillus in nineteen out of twenty cases.

Bacteria.—The normal stomach, though it does not particularly favor bacterial growth, contains many microorganisms. These are least in number when the secretions are normal in strength and quantity, and the physiological processes of digestion are undisturbed. Bacteria are able to propagate luxuriously under abnormal conditions only. That the HCl of the stomach has no antiseptic qualities is shown by the fact that hyperchlorhydria favors their growth quite as much as diminished HCl secretion. Dilatation or pyloric obstruction, in which the food lies for a long time stagnant within the stomach, is particularly favorable to bacterial growth and decomposition. Only marked increase in the number of bacteria may be considered of pathological importance.

In order to examine the stomach contents for bacteria, spread a drop of fluid contents upon a cover-glass; let it dry without heating;

then pass three times through a gas or alcohol flame, specimen side up. Stain with methylene blue and examine under at least 600 diameters.

To ascertain the quantity of bacteria per cubic centimeter involves a technique belonging to the bacteriological laboratory which is too extensive for detailed description here. Briefly, a small quantity—for example, 0.1 cubic centimeter—of the fluid contents is diluted 1000 times, and one cubic centimeter of the dilution spread upon a nutrient medium. The colonies which develop are counted, and the total quantity of bacteria ascertained by multiplying the number of colonies by 1000 and this product by 10. The quantity cannot be considered extraordinary unless it exceeds 100,000 per cubic centimeter.

Tissue Fragments.—In carcinoma fragments of tissue are occasionally found in the vomitus, the wash-water, or the contents after a test meal, and are of value in diagnosis. An effort has been made to secure such fragments by more direct means, and instruments have been devised for such purpose. Some years ago I observed a case of gastric cancer, which terminated suddenly after the "gyromele" had been used to secure fragments of tissue for examination. The post-mortem disclosed a stomach distended with blood, and was an eloquent appeal for the avoidance of such dangerous means of assuring a diagnosis in suspected cancer. A patient with gastric carcinoma is an unsafe field for the operation of the tube or any other artificial method of securing a specimen.

In other conditions than cancer small pieces of mucous tissue are often found in the wash-water after lavage, and Einhorn and others have studied to make them of value in diagnosis, without, it may be admitted, much result. The truth seems to be that the gastric mucosa is constantly undergoing exfoliation like all other epithelial tissues.

BEDSIDE EXAMINATION.

Just as it is sometimes necessary or expedient to make a urine or blood analysis at the bedside or in the home of the patient, circumstances may require an examination of the stomach contents to be made under the same less favorable conditions. Most often the specimen to be examined is vomited matter.

The use of a tube for obtaining a specimen is attended with danger in ulcer, cancer, and other cases wherein retching and vomiting may cause hemorrhage, as after recent pulmonary hemorrhage, in aneurism, cirrhosis of the liver, pernicious anemia, etc. Recent gastric hemorrhage, especially in cases of ulcer, positively contra-

indicates the passage of the tube. When not thus prohibited, it may be very carefully introduced if the conditions warrant the taking of chances, but the throat should be previously sprayed with a solution of cocaine.

Riegel, Edinger, and others have attempted to lessen the danger of provoking hemorrhage by using, instead of the tube, a sponge attached to a silk thread; and Einhorn has invented a "stomach bucket" for the same purpose, with which he succeeds in obtaining small amounts of the gastric secretion for examination. I have had no experience with either of these methods.

In order to conduct bedside examinations, stomach-tube, evaporating dish, graduated test-tube of 10 cubic centimeters capacity, medicine dropper, litmus test paper, and solutions No. 2, 3, 6, 7, 8, 10, and those required for Uffelmann's test, will be required. An ounce or two of No. 10 should be carried; the rest are needed in small quantities only.

The physical characteristics of the specimen having been noted (Section I), and also the gross appearance of any abnormal constituents (Section VI), it should be filtered through muslin cloth.

Test the filtrate with Lugol's solution to determine the quality of starch solution (Section III).

Apply the biuret test for peptone and Trommer's test for maltose (Section III).

Apply Töpfer's dimethyl-amido-azo-benzol test for free HCl, and confirm the result by the resorcin method (Section IV).

Measure five cubic centimeters of the filtrate in the tube and pour it into the evaporating dish or a glass tumbler, adding a drop of dimethyl solution No. 7. Cleanse the tube and fill it to the top of the graduated scale with soda solution No. 10. With the medicine dropper add the soda solution to the filtrate, stirring it meanwhile, until it is perfectly neutralized. Determine the quantity of free HCl by calculation (Section IV).

Repeat the process with phenol-phthalein as an indicator to determine the total acidity (Section IV).

This method of quantitative analysis of HCl has advantages in bedside testing over any other with which I am familiar, and, withal, is rapid, simple, and accurate.

Apply Uffelmann's test for lactic acid (Section V). The total lactic acid may be ascertained, if that is necessary, with the apparatus at hand (Section V), if either be included in the paraphernalia.

Indeed, the evidence furnished by the examination it is possible to conduct at the bedside may be quite as valuable in practice as more elaborate methods would make it.

BOOK REVIEWS.

MANUAL OF DISEASES OF THE EYE. By Charles H. May, M.D. New York: Wm. Wood & Co. 1900.

This is a small work of 406 pages printed upon thin paper, making a very compact volume which can be carried in the pocket. The author tells us that he has endeavored to present a concise manual intended for the student and general practitioner. The reduction in size has been accomplished by omitting excessive detail and lengthy accounts of theories and rare conditions. He has only aimed to give the fundamental facts of ophthalmology and to cover all that is essential in this branch of medicine. Space has been allotted to the subjects necessary to such readers, and rare conditions are merely mentioned and uncommon affections dismissed with a few lines. The commoner diseases which the general practitioner is most frequently called upon to treat are described with fulness.

The work opens with a brief description of the external examination of the eye, followed by a chapter on the subjective examination, the extent of visual fields, and acuteness of vision. Then follows a description of the internal examination of the eye, with a description of the ophthalmoscope. Four plates are used to illustrate the appearance of the normal fundus. There is an excellent description of the affections of the eyelids and lacrimal apparatus, together with the operations and instrumentation necessary in these conditions. In diseases of the orbit the author describes orbital periostitis, pulsating exophthalmus, with tumors of the organ. Enucleation of the eyeball is described in this chapter, and Mules's operation is said to furnish the most useful stump, but it frequently happens that the artificial vitreous is extruded. The various forms of ophthalmia are described, and emphasis is laid upon the fact that in the treatment of the disease constitutional conditions must be looked for. Credé's method of combating ophthalmia in the new-born is commended. In speaking of trachoma, the writer adopts the theory of a contagion. In the treatment of it sulphate of copper is extolled, as well as the surgical treatment by expression. Phlyctenular conjunctivitis is treated by calomel, though a favorite remedy is the yellow oxide of mercury if the inflammation is not too great. In the treatment of diseases of the cornea, most of the accepted methods are mentioned. Episcleritis is described, and its treatment is given as yellow oxide of mercury locally and the iodide of potassium internally. Sodium salicylate may be employed in cases where the origin is rheumatic. In the treatment of glaucoma we see no mention of massage, though the favorable results following the systematic use of this means certainly make it worthy of mention. The various forms of cataract are quite fully described, with the best methods of dealing with them. Retinitis is fully described; also diseases of the optic nerve. The connections of the retina with the cortex, disturbances of which give hemianopsia and hemianopia, are fully described. The work closes with a statement of simple optical principles and a description of the various tests employed in measuring refraction.

On the whole, the work forms a small but up-to-date manual which will find its chief field of usefulness with the undergraduate and the general practitioner.

AMERICAN TEXT-BOOK OF PHYSIOLOGY. By Numerous Writers. Edited by William H. Howell, Ph.D., M.D. Second Edition, Revised. Volume I. Price, $3.00. Philadelphia: W. B. Saunders & Co.

The second edition of the American Text-book of Physiology is to be issued in two volumes. The purpose of this is to overcome the inconvenience of the bulky proportions of the single volume of the first edition, which was awkward for students who wished to use the work as a class-room text-book. The actual amount of the material remains about the same as in the first edition, but many changes have been made. The editor in his preface says that since the appearance of the first edition there has been much progress in physiology. This has been brought about by the constant activity of observers in this and related sciences in all parts of the world. An effort has been made by the various contributors to keep pace with this progress. Statements and theories that have been shown to be wrong have been eliminated, and the newer thoughts and discoveries have been incorporated as far as possible.

Volume I includes an introduction and a description of the blood and lymph, by W. H. Howell. The same writer also discusses secretion, the chemistry of digestion and nutrition, movements of the alimentary canal, bladder, and ureter. The account of the circulation is by John G. Curtis and W. T. Porter. Respiration and animal heat are described by Ed. T. Reichert. Graham Lusk discusses the chemistry of the animal body. The necessity of early preliminary training of the medical student along scientific lines is emphasized in the editor's closing paragraph of the introduction: "It follows clearly enough, from what has been said of the methods used in animal physiology, that even an elementary acquaintance with the subject as a science requires some knowledge of general histology and anatomy, human as well as comparative, of physics, and of chemistry. When this preliminary training is lacking, physiology cannot be taught as a science; it becomes simply a heterogeneous mass of facts, and fails to accomplish its function as a preparation for the scientific study of medicine. The mere facts of physiology are valuable, indeed indispensable, as a basis for the study of the succeeding branches of the medical curriculum, but in addition the subject, properly taught, should impart a scientific discipline and an acquaintance with the possible methods of experimental medicine; for among the so-called experimental branches of medicine, physiology is the most developed and the most exact, and serves as a type, so far as methods are concerned, to which the others must conform."

The first edition begins with a consideration of the physiology of muscle and nerve, while the present one takes up first blood and then the circulation, to be followed by secretion, digestion, nutrition, respiration, animal heat, and then the chemistry of the animal body. There is very little that we can say in addition to what was said in our first review prepared in 1896, namely, that this is easily the leading English text-book on physiology. It has been improved by printing it in two volumes.

BACTERIOLOGY AND SURGICAL TECHNIQUE FOR NURSES. By Emily M. A. Stoney. Price, $1.25. Philadelphia: W. B. Saunders & Co. 1900.

This small work, intended especially for the instruction of nurses, will prove very serviceable to them, and it can be confidently recommended by the medical profession, as it is not prepared in such a way as to lead the nurse to think that she can stand in the place of the physician. Bacteriology can never

be taught didactically, and the reading of a book upon this subject will never enable one to follow an aseptic technique. Every nurse should be taught bacteriology in a laboratory, as this alone will supply the application of those principles which can be relied upon to secure asepsis in the operating-room. While this is true, it is also important that we have a text-book suitable for the comprehension of the average nurse which states these principles. This want is admirably supplied in the volume we are considering. The first sixty pages are devoted to a general statement of a history of bacteriology, bacteria as the cause of disease, the theory of antitoxins, antiseptics, and disinfectants and deodorants.

Then follows the practical portion of the work, which deals with such topics as the care of the operating-room, the methods of sterilization, and the care of instruments. The advice to nurses relative to secrecy regarding what patients may say during anesthesia, and care in speaking in the presence of patients undergoing anesthesia, should be impressed upon the mind of the nurse; indeed, the obligation of professional secrecy is quite as great upon nurses as upon physicians, and in too many cases it is regarded too lightly by them.

The directions regarding anesthesia are excellent, and nothing is to be desired in the description of surgical dressings. The preparation of the patient is carefully given. There is a short chapter on the preparation of the patient in private practice. The work closes with a brief description of the signs of death and the method of preparing for autopsies.

PATHOLOGY AND MORBID ANATOMY. By T. Henry Green, M.D., F.R.C.P. Revised and Enlarged by H. Montague Murray, M.D., F.R.C.P. The Ninth American Revised from the Ninth English Edition by Walton Martin, Ph.B., M.D. Philadelphia and New York: Lea Brothers & Co. 1900.

It is nearly twenty years since Green's Pathology was first published as a small work of about 200 pages, which really served as an introduction to the, in that day, comparatively meager subject of pathological anatomy. In both the American editions and the American reprints there has been a steady increase in the size of the book and an adaptation of its contents to the advancing science of the day. The present work is a volume of 585 pages, and is a complete though compact work upon pathology. In this last edition nearly half of the subject-matter has been rewritten, and several new sections have been added. Many of the old illustrations have been withdrawn, and 180 now appear for the first time. It is a matter for regret that all of the older illustrations were not taken out, or at least redrawn, as many of them by long service have become so obscure in detail as to seriously mar the appearance of the book. There is little change in the arrangement of the early part of the work. There is an excellent description of the malarial parasite, and a statement of the relation of the mosquito to the spread of this infection. There is a description of the Anopheles and the Culex.

An interesting comparison is found in the first edition of Green's Pathology and this last, in the difference in the space devoted to the parasites and bacteria. In the first work these subjects occupied a very subordinate place, while from year to year their importance seems to be increased to such an extent that one may almost doubt whether they may not wholly occupy the field of pathology. The pathology of the nervous system forms the closing chapter,

and has been written by Fred W. Mott. The neurone doctrine forms the basis of the study. This conception has done so much to broaden the study of the changes in the nervous system that it is gratifying to see it practically introduced into a student's manual of pathology.

A Book of Detachable Diet Lists. Compiled by Jerome B. Thomas, Jr., A.B., M.D. Second Edition, Revised. Price, $1.25. Philadelphia: W. B. Saunders & Co. 1900.

This book consists of a series of perforated leaves which may be detached and given to the patient. The systemic conditions in which diet plays an important part are the ones for which the lists are adapted. The following divisions are named: (1) Albuminuria; (2) anemia and debility; (3) constipation; (4) diabetes; (5) diarrhea; (6) dyspepsia; (7) fevers; (8) gout or uric acid diathesis; (9) obesity; (10) tuberculosis. In addition there is a sick-room dietary and rules for rectal alimentation. The lists are printed with an appropriate heading, a place for the name and date, and bear a legend which is not unimportant, "This diet table is strictly personal and private, adapted only for the present time and to this particular case." There is a space on this side for special directions of the physician. On the reverse side of each list, the general rules that are to be followed are stated; then there is a list of what the patient may take and what he must avoid. In the main the rules are excellent, and the lists will be found to be practical and convenient. It will save a great amount of time in directing the patient's diet, and will give an opportunity for individualizing by adding to the items set down.

A Text-book of Histology and Microscopic Technique. By A. A. Bohm, M.D., and M. Von Davidoff, M.D., of the Anatomical Institute in Munich. Edited, with Extensive Addition to both Text and Illustrations, by G. Carl Huber, M.D., of the University of Michigan. Authorized Translation from the Revised German Edition, by Herbert H. Cushing, M.D. Price, $3.50. Philadelphia: W. B. Saunders & Co. 1900.

The book begins with a description of the fixation, infiltration, and embedding of tissues. This is followed by a brief historical account of the cell. Following this we have a description of the tissues, the various glandular organs, the bones, teeth, cartilage, etc. After the description of the tissues generally, we have an account of the special histology of the organs.

The text of the work leaves little to be desired; it is expressed in direct English, and there is little to remind one that it is a translation from the German. The illustrations are many of them original, and most of them are new. The book has been handsomely issued by the publishers, and it forms the most extensive work upon histology available for English readers. In an appendix we find an extensive bibliography.

EDITORIAL COMMENT.

THE CRUCIAL EXPERIMENT IN THE MOSQUITO MALARIA THEORY.

Patrick Manson, in an article in *The Lancet* of September 29, 1900, says that he is impressed with the correctness of the view that the mosquito conveys the malarial parasite to man. This is sufficiently proven by the work of the Italians who have infected persons by bites from mosquitoes. These experiments were made in Rome, a region much affected with malaria, and they have not attracted that attention which they deserve. While every care was exercised to exclude error, the circumstances surrounding them were sufficient to throw doubt on their value, both in the minds of the general public and in the profession not familiar with the details. Accordingly, he attempted to repeat the experiment in England. For this purpose it was necessary to secure mosquitoes and allow them to feed upon a patient suffering from a benign tertian type of the disease. The absolute purity of the infection could only be ascertained by careful and repeated examinations of the blood of patients. The mosquitoes were then placed in cages made of netting stretched upon wire frames. Four such cylinders were packed in a well-ventilated box and shipped to the London School of Tropical Medicine. They reached London within forty-eight hours after leaving Rome. Many of them died on the journey, but a fair proportion appeared healthy and vigorous.

The person selected for the experiment was Mr. P. T. Manson, of Guy's Hospital, who states that he was perfectly healthy and has lived in England ever since his third year. He has not been in any district which is reported to be malarious. Of the last lot of mosquitoes, some fifty or sixty in number, in good condition, twenty-five bit him on September 10, and ten bit him on September 12. On September 13 he arose feeling languid and out of sorts, with a temperature of 99°. By midday he was feeling chilly, and at 4.30 P.M. he went to bed with a severe headache, a sense of chilliness, lassitude, pains in the back, and a temperature of 101.4°. No parasites were found in the blood. On September 14 the temperature ranged from 101° to 102°. On the morning of September 15 he felt better, but in the afternoon had a distinct chill and became hot and listless, with a temperature of 103.6° at 4.30 P.M. On September 16 one half-grown tertian parasite was found. On the following day sev-

eral half-grown parasites and two pigmented leucocytes were found in the first slide examined. During the day many tertian parasites were found. Slight splenic enlargement was noted on that day. On September 18 ten grains of quinine was given, and subsequently five grains every eight hours. A few undeveloped tertian parasites were found during the day. On the next day no parasites were discovered, and the temperature was normal; the splenic enlargement disappeared, and the normal conditions returned. On the 27th of September he was in perfect health, with no recurrence of the malarial symptoms.

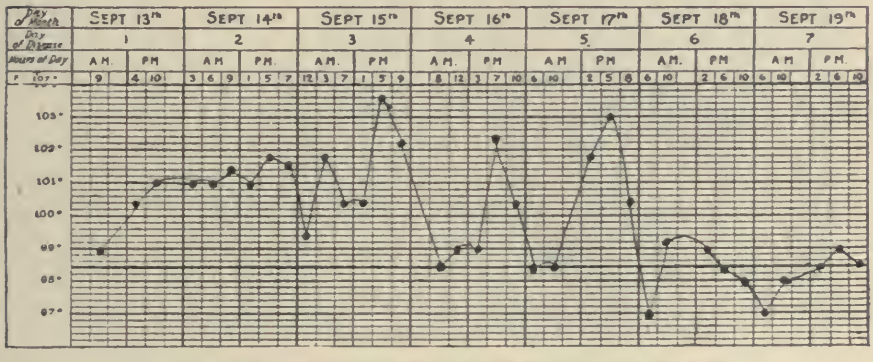

Chart showing course of temperature in the case of Mr. P. T. Manson.

These experiments, taken in connection with those now being conducted by Drs. Sambon and Lowe in the Roman Campagna, the last letters from whom, written on September 21, announce their freedom from malarial infection, would seem to conclusively settle the view that malaria is a mosquito-borne disease. They show that protection from the mosquito bite is all that is required to secure immunity from malaria. This is not incompatible with considerable activity out-of-doors during the day.

This seems to settle the question of one method of infection, but does not exclude other methods, though we think that they are of doubtful activity. There is a well developed belief among those who reside in malarious districts in the United States that malaria may be a water-borne disease in contradistinction to an air-borne disease, which was the theory up to the present time. The theory of water-borne malarial infection was strenuously urged by Dr. Daily, of Pittsburg, who advanced many facts in support of his contention that drinking-water might be contaminated by the malarial parasite. Whether the malarial parasite would pass the portal cir-

culation, after running the gauntlet of the gastric secretions, is perhaps doubtful, but it is well to remember that those who have so strenuously urged the mosquito as a carrier of the infection have not excluded other means of conveying the disease. A water-borne infection would be easily dealt with, if it should be proven that the infection is conveyed in this way.

The *Medical Record* of October 27, 1900, says that Dr. Robert Koch announces that he has conquered malaria, having discovered a means of preventing the disease spreading in malarious districts, and even of stamping it out completely. He also claims to have discovered a remedy which is both curative and prophylactic, and the *Record* ventures the prediction that the latter will be put upon the market as soon as the arrangements can be satisfactorily made with some German chemical house of good financial standing. The *New York Times* is quoted as saying: "As might have been expected from the previous course of Dr. Robert Koch, there is not a word in the announcement of his successful investigation of the cause and cure of malaria to indicate that he is not alone in this field of study, or to hint that he has simply been following a line carefully marked out long ago by other scientists, and since developed by them with an industry and an ability at least equal to his own. . . . His reputation—out of Germany at any rate—is not less businesslike than scientific, and he has been charged before now with a somewhat unprofessional tendency to monopolize glory and profits in a way not quite compatible with delicacy of sentiment. His recent labors in China have apparently brought nearer to the point of actual demonstration the theory that malaria and mosquitoes are closely related; but that is not his theory, except by adoption, and he might well say more than he does about the English surgeon stationed in India who originated it, and about the men of the same and other nationalities who have done so much to lend it credibility."

A SUBSTITUTE FOR THE IODINE SALTS.

The best salt for the administration of iodine has not yet been determined. Some practitioners employ only iodide of potassium, and perhaps this is the most popular. Those who administer iodides in very large doses, and who treat a large number of cases, are partial to the iodide of sodium; a few prefer mixed iodides, using sodium, ammonium, and potassium salts in varying proportions. A wide experience, we think, will convince most practitioners that the sodium salt is by far the least deleterious, causes less disturbance of

the stomach and less iodism. It is generally believed that the alterative properties of these salts depend upon the iodine which they contain. The late Professor Gunn was so impressed with this fact that during many years of his practice a favorite prescription with him was one composed of eight grains of iodine, eight drachms of potassium iodide, in eight ounces of syrup of sarsaparilla. This was given in tablespoonful doses.

One unpleasant feature of the iodine salts is their bad taste. To some their taste is so offensive as almost certainly to cause some gastric intolerance. The interference with the digestive functions varies also in different patients. At one time this was erected into a test of syphilitic infection, it being claimed that those patients who tolerated the iodides in very large doses probably suffered from this disease, while those in whom marked iodism was produced did not suffer from the infection. Some even carried this doctrine so far as to state that they had observed cases in which during the quiescent period of syphilis there was an intolerance of iodides, but during the active period of the disease no such disturbance was noted. Some patients cannot take the iodine salts because of the profound disturbance which they cause, and the administration of considerable doses is not devoid of dangerous effects, such as alarming prostration, cardiac weakness, and edema of the lungs. A well marked peculiarity is the fact that large doses are not more liable to be followed by severe iodism than moderate or even small doses. Certainly the administration of large quantities of fluid with the iodides is one of the best means of avoiding iodism.

A number of substitutes have been sought for the iodine salts, and a satisfactory one has been found in hydriodic acid where small quantities are to be administered, meaning by this a quantity equivalent to ten or fifteen grains of the potassium or sodium salts. When it is desired to obtain a rapid saturation of the system by the administration of very large doses, as in cases of syphilis of the central nervous system, in which several hundred grains is to be administered each day, the acid cannot be employed.

Of late a substance has been highly spoken of in numerous foreign journals, called iodipin. It is a feeble organic combination of iodine forming an oily liquid. It is easily absorbed, rapidly decomposed, and under its effect there is a quick saturation of the system with iodine. It may be given by subcutaneous injection, when it is claimed to be entirely free from irritating properties. It may also be administered in capsules and by the mouth in the same manner

that oily substances are generally administered, in wine, beer, or milk. The fact that this substance can be administered hypodermically is an important item. Many cases of nervous involvement following syphilitic infection are so rapid that a day or two is of very great importance in limiting the spread of the disease. In such cases it might be wise to supplement the internal use of the iodides or iodipin with the administration hypodermically of the latter substance. Perhaps it will prove satisfactory in those cases in which there is a marked intolerance for the iodides. Possibly this is the iodine compound which has long been looked for that is to enable us to institute alterative treatment devoid of many of the disagreeable accompaniments of the administration of ordinary iodides. The reports so far which have appeared in medical journals are very favorable, but we are always willing to discount the early advices as to the value of a particular drug. Even if we do so in this case, there is still enough left to warrant an extensive trial of the drug.

"SUBJECTIVE" AND "OBJECTIVE" AS USED IN COURTS.

The rule has prevailed in the Illinois courts of limiting the examination of the medical man to matters that are purely objective, provided he has made the examination for the purpose of testifying in the case. If the physician has made the examination for the purpose of treating the case, perhaps long before there was thought of litigation, or the statements that were made by the patient to him were clearly for the purpose of guiding him in the cure of the case, then they are admissible. This clearly defined and apparently just rule is a comparatively late product. A decade ago trial courts varied very much in their decisions, some holding that the statements made by patient to physician were always competent, and others that they were never competent. The rule that we have stated seems to have crystallized into a fairly uniformly applied guide for practice. The justice of it is apparent and scarcely admits of argument. The statements made by a patient to a physician, clearly with the intention of guiding him in the application of remedies, should be competent, because they are evidently truthful. If, however, it could be shown that the motive of the patient was different from that stated, then clearly they would be incompetent. An examination made for the purpose of enabling the physician to go into a court of law and testify, clearly ought to be limited to such objective facts as he can observe in the patient; otherwise the plain-

tiff would be allowed to practically make his own case by favorable statements to physicians regarding his feelings, condition, and the results of injury or accident.

A difficulty has arisen as to the definition of the words subjective and objective; an analysis of their meaning shows that it is very difficult to draw a sharp line between them. In almost every personal injury case involving expert medical testimony, the definition of these is asked for. There is no uniformity in the manner in which they are defined. The word subjective is sometimes understood to mean something which is verbally uttered by the patient, while objective is understood to be that which is observed by the examiner. Others understand by subjective, a symptom, or condition, or expression in any way by a patient, that may be simulated or offered voluntarily by him. If we examine the word subjective as defined in Webster's dictionary, comparatively little light is thrown upon this use of the word. A portion of the definition says: "Especially pertaining to, or derived from, one's own consciousness, in distinction from external observation; relating to the mind or intellectual world in distinction from the outward or material; excessively occupied with, or brooding over, one's own internal states." It is evident that in this definition the philosophical use of the word is in mind and not its practical application, as it is commonly employed in courts of law.

We are then concerned principally with two conceptions, namely, one which regards subjective as distinct from objective when applied to symptoms and conditions as something which the patient verbally conveys to the examiner; the other conception making the distinction as to something which the patient cannot voluntarily in whole or in part simulate. It is manifest that there is a wide distinction between these two conceptions. For example, if an individual who claims to have a tender spot upon his back states that in so many words to his examiner, it is said to be subjective; if the examiner touches him upon the part and he flinches, that is in a certain sense objective, because the physician notes the start of the patient, but in reality it has conveyed a subjective idea to the examiner by a sign instead of spoken language. It will always be difficult, whatever rule is adopted, to accurately distinguish between subjective and objective, as these two conditions shade into each other by imperceptible degrees. Thus, what is commonly known as the knee-jerk, the movement of the foot which follows a sudden tap over the tendon connecting the patella with the tibia, is purely objective; it cannot be altered or suppressed by the patient, and it would be

impossible to deceive even the most unskilled examiner, providing ordinary precautions were taken. From a sign which is purely objective, such as this, we have all gradations until we reach those which are purely subjective.

THE BECQUEREL RAYS.

The form of radiant energy which has been described as the uranium rays is devoid of medical interest at the present time, but it is uncertain how long this condition may obtain. They are certainly of great interest to the photochemist, and possibly may prove to be of great value in medical science. The exact position that the rays occupy is not definitely known; by some, they are thought to be identical with the *x*-rays, but this is probably not the case. The Becquerel rays have been known since 1896. They were first discovered by placing some sulphide of zinc upon a photographic plate and then exposing it to the action of the *x*-ray. Dark patches appeared upon the plate wherever the sulphide of zinc was superimposed. It was believed that these were due to the zinc salt having increased the chemical activity of the *x*-rays. This theory was disproven by Becquerel, who showed that the sulphide of zinc itself emitted rays, and that many other substances had the same property. It was found that the intensity of the rays emitted was proportionate to the atomic weight. Uranium having the highest atomic weight, its salts are the most efficient producers of these rays. At the best, they were very feeble, and an exposure of weeks was required to produce even faint shadows. Madame Curie, a Polish lady living in Paris, has experimented with these rays and has found that an ore known as pitch-blend, which is a compound of uranium, produces these rays many hundred times more powerful than any known salt of uranium. A chemical analysis of this ore gives the chemical reactions of bismuth and barium. Salts of these metals, however, are known to be devoid of ray-producing power, and hence Madame Curie claims that she has discovered two new elements. Her claim, however, has not yet been substantiated, though it rests upon a plausible deduction. There is a possibility that a combination of metals and their salts, such as we have in pitch-blend, may result in a greater production of the rays.

The Becquerel rays are believed to have something in common with the *x*-rays, but are not identical with them. Fluorescence may be obtained with these rays at a distance of eight inches, while with the Roentgen rays a similar phenomenon may be obtained at a

distance of twenty-seven feet. Like the Roentgen rays, the Becquerel rays are not refracted by prisms or lenses. In the presence of the Becquerel rays it is impossible to charge an electroscope or Leyden jar, as the rays cause the air to become a nearly perfect conductor for electricity. Like the Roentgen rays, the absorption, when passed through substances, varies with the specific gravity of the latter. At present no shadows of the skeleton have been obtained by exposure to the Becquerel rays.

Perhaps the most remarkable of the properties of the Becquerel rays is that they seem to be an inherent property of the substance which emits them. There is no loss of weight nor apparent chemical action. The pitch-blend seems not to lose its power from prolonged use.

DIAGNOSTIC VALUE OF CHEMICAL EXAMINATION OF THE STOMACH CONTENTS.

A comparatively few years since certain observers began the study of the stomach contents which had been removed after what is known as a test meal, in which a definite quantity of food is introduced into the stomach, and at the end of an hour its contents are taken out for examination. These studies were largely initiated in Germany, and attracted world-wide attention. It was claimed that by the analysis of the stomach contents we could certainly diagnosticate cancer, ulcer, carcinoma, gastritis, and atrophy of the mucous membrane. Extensive use of these methods by numerous observers has shown that the early claims are largely unfounded; in the main the diagnosis of these several conditions must be based upon clinical studies along the lines of Trousseau and others. The claim was made that an absence of hydrochloric acid was almost pathognomonic of carcinoma, while an increase in hydrochloric acid was indicative of ulcer. These claims have not been substantiated by more extended study, and to-day the clinical features of cases are assuming more prominence, and reliance upon examination of the stomach contents less. A recent monograph by Osler upon cancer of the stomach especially emphasizes the clinical features of the disorder, the mere chemical examinations of the stomach contents being relegated to a less important position.

While this is true as to diagnosis, it is not true as to treatment. Here the quantitative estimation of the stomach contents is of the utmost importance. Deficiencies are in this way ascertained and may be readily corrected. The chemical examination of the stom-

ach, to be at all efficient, must be quantitative and not qualitative; the latter has prevailed almost to the exclusion of the former, and some diagnosticians have been content to rest their opinion in a stomach case upon the mere presence or absence of free hydrochloric acid. Such observations are faulty and are based upon the mistaken notion that the presence or absence of free hydrochloric acid or combined acid is a pathognomonic symptom of many diseased states.

SENILITY.

Senility is a variable term, and not always to be measured by years. It is a common saying that a man is as old as his arteries, and this expresses at least a part of the truth. Occasionally a death certificate is written in which the cause is said to be senility or old age, but this is a term simply employed to disguise our ignorance of the real cause of death. As a matter of fact, persons never die of old age, but of the senile changes in the liver, kidneys, heart, and vessels, which are variously grouped under the terms of senility, sclerosis, etc.

H. C. Wood, in the *Philadelphia Medical Journal*, says that the theory that old age is connected with a definite number of years is incorrect. There is a general period after which tissue changes take place, resulting in what may be properly called old age, but it differs not only in individuals, but in families. There are some men not as far advanced in senility at 80 years of age as others are at 70, or at 60, or even at 50 or 40. He has seen the almost complete extinction of two generations of certain families by death from senility when between 30 and 40 years of age. As the deaths in these cases were the results of changes in the tissues commonly called senile, it is just as correct to say that the subjects died of old age, though they were perhaps only 35 years old, as it is to say that certain other persons have died of old age at 75 years of age.

ABSTRACTS.

MEDICINE.

Heredity of Disease.—

Thomas Oliver, in *The Lancet* of November 10, 1900, has an exceedingly interesting article on the etiology and pathology of inheritance. In the study of the question he leaves out of consideration congenital affections and deformities and those circumstances directly operating upon the fetus *in utero* and at the time of birth. He deals with those individuals born presumably healthy, but in whose systems there are such deviations from the normal that as time goes on life is brought prematurely to a close by a disease similar to that from which one or both parents died, or during whose lives there are exhibited traits of character and disposition that recall the life of a parent or an earlier ancestor. He eliminates congenital syphilis and congenital tuberculosis, as in these cases the actual disease is passed on to the offspring. In speaking of the influence of education and surroundings, as well as inheritance, upon the mental power, he says:

"We are what we are because we cannot be otherwise, and we become what we are through inherited qualities. Human experience, on the other hand, shows that however much certain qualities may be inherited, it is not always and alone thus that they come to us. Evolved in the course of time, they have been fostered by survival of the fittest, by marriage, and by education. If we add to patience, to zeal, and to capacity for work, good health, then by the proper exercise of all our powers advancement in life must be secured. Social advantages, dogged perseverance in a particular calling, good manners, and ability to utilize opportunities make for success; yet, on the other hand, it must be admitted that when an individual is possessed of great natural ability or those qualities of intellect and disposition that urge to the performance of acts that lead to reputation, it is almost impossible for him to have his progress thwarted either by the circumstance of lowly birth, by social disadvantages, or even by the defects of early education. By virtue of the gifts which he has inherited he overcomes all difficulties and therefore must come to the front. If there are inherited qualities that make for good, so, too, must there be others that make for harm to the individual. . . . When we ask ourselves the question, 'What is it that is inherited?' we find it difficult to reply. A

mother, for example, may transmit masculine peculiarities to her son which she herself does not exhibit, and it does not follow that because a mother and father are highly intellectual their child will also exhibit ability. The child, as already stated, is the offspring, not of the parents alone, but of earlier ancestors as well. Given intellectual parents, all we can say is that the chances are that their offspring will be gifted to a greater degree than children in whose family nothing beyond mediocrity has ever been attained. Ability clings to families, but in order that it may be displayed there must also be inherited capacity and zeal for work, for without these only a sorry figure will be cut in the world, compared with what might be accomplished."

The writer gives some instructive examples in heredity as shown in the modern race-horse, the pedigrees having been kept so accurately for many years. The most interesting portion of his address deals with the heredity of disease. Among those mentioned in which there is a distinct susceptibility to disease by inheritance are hemophilia, cancer, phthisis, diabetes, and the alcohol habit. In hemophilia the transmission is to males through the female line. Diabetes is in many instances a hereditary disease. Wile is quoted as having traced the history of ninety members of a family, extending through four generations, seventy of whom were living at the time the study was made; the disease was traced to a common ancestor. In this family, twenty-one were certainly diabetic and thirteen doubtfully so. Removing the doubtful cases, there remained seventy-eight persons, of whom twenty-three were affected with the disease, or 30 per cent.

In tuberculosis, a disease due to a germ, it is necessary to alter our views of the hereditary nature. All that can be said of pulmonary tuberculosis is that it is the accidental incidence of the tubercle bacillus upon tissues that are susceptible. Tuberculosis is rarely transmitted directly from parent to child. All that is transmitted is the soil and the enfeebled constitution or diminished resistance to the particular microbe. The close intimacy that exists between an affected mother and an infant may result in infection, but this is not the transmission of a hereditary taint. The writer studies the mortality tables of certain insurance companies, which he thinks conclusively show the inheritance of phthisis. The influence of it, however, is much less than has been generally believed, and of late years it has proven to be a diminishing factor. Where there is a family history of phthisis, the members of the family are more liable to become phthisical than those of an untainted family, and at an

earlier age. Where both parents have been tuberculous, it begins at a still earlier age and there is greater liability.

In relation to cancer, the experience of the insurance companies shows that the mortality from this disease is on the increase, but the statistics do not show that it is markedly hereditary; not nearly so much so as phthisis.

The Relation of Rats to the Bubonic Plague.—

In the *Pacific Medical Journal* for November, 1900, P. C. Remondino refers to the various theories of the manner in which plague is propagated. As early as 1720 what was known as the Montpellier Commission had ascertained that the infection could not be conveyed to a dog by feeding him upon the discharges from the ulcers of a plague patient, but if the same substance was injected into the femoral vein the animal died from the infection within four days. The ancient Hindu books contain the advice: "On the moment that rats fall down the roof above and jump about and die, the people will at once leave their houses with their friends and relations and go to the plain." This advice has been regularly followed in certain parts of Hindustan. Wherever the plague possesses an endemic center, the rats suffer, and generally primarily from the same disease, In Formosa the plague is known as the rat pest. Epidemics of plague generally appear in persons working about wharves or in grain stores, in stables, or in the holds of ships. Simond regards fleas and rats as certain carriers of the infection to man. According to this observer, perfectly healthy rats harbor but few fleas, but as they sicken the fleas upon them increase in numbers until dying rats at times literally swarm with them. After the rat is dead the fleas leave its body for another host, thus gradually infecting a greater number of rats. He has experimentally shown that the flea can carry the plague to healthy rats by placing an animal infected with plague and having fleas with a healthy rat, the latter placed in a small cage to prevent contact, and both put under a large glass jar. In some cases the healthy rat acquired the plague and died. If the rat with the plague was thoroughly rid of his fleas, the healthy rat remained perfectly well. The German commission appointed to investigate the nature of the plague and to test the saprophytic properties of its bacillus, join in the view that inanimate objects play but little if any part in its dissemination. This commission decided that the infective period of the bacillus did not survive beyond seven days. The plague bacillus is easily killed by gases and liquid disinfectants. It, however, shows a marvelous

vitality in varying climates and conditions, seeming to thrive in the frozen regions as well as in the hot soil of India.

A study of all the factors of dissemination up to date shows that the rat and flea medium, if not the only are at least the most prominent means of distribution of the plague bacillus; hence, the extermination of rats is one of the most important means of preventing or limiting the spread of the disease. The writer speaks of the plague of rats which has prevailed in Thessaly. In that region the grain crops have been more than once completely ruined by rodents. In 1892 the ravages of these animals became so destructive that Professor Loeffler was invited to visit the region. He had previously discovered a bacillus that was fatal to rats. This germ was sown upon bread, distributed through fields, and was greedily eaten by the rats. In eight days the disease appeared in them and destroyed enough rats to save the grain crops. This method has been followed with great success every year.

Attention is called to the ease with which rats in the holds of vessels may be destroyed by carbonic acid gas. The specific gravity of this gas is such that it sinks to the bottom of the vessel, penetrates every nook and cranny, and destroys the rats as soon as it reaches them. It has no effect upon the cargo, and as soon as it is removed by ventilation it is safe to enter the hold. The method of placing funnels upon the hawsers of ships is at best an imperfect way of preventing the migration of rats to the shore, as the rat, though he does not take kindly to water, can swim. In the use of ordinary disinfectants in ships this is an especial danger, as the pungent odors drive the rats from the ship, and if they are within swimming distance they can readily reach the shore.

Feeding in Typhoid Fever.—

G. W. Moorehouse, in the *Boston Medical and Surgical Journal* of November 15, 1900, gives his experience with a more liberal diet in typhoid fever. The studies are based upon 150 cases treated in the Lakeside Hospital, Cleveland, Ohio. The treatment employed was tubbing when the temperature reached 102.5°. In all of the cases very little medication was employed, with the exception of a fairly uniform administration of calomel at the outset of the disease.

To simplify the feeding of patients and to obtain some uniformity, the following diet table has been adopted:

"*Milk Diet.*—The standard for a milk diet shall be eight ounces every two hours, subject to special directions as to night feedings. Watch stools for undigested milk. Report and record failure to take full amount.

"*Liquid Typhoid Diet.*—In twenty-four hours: Milk, eight ounces four times; milk, six ounces, with tea or coffee, one-half to one ounce twice; albumen water, eight ounces twice; beef tea, eight ounces once; malted milk, eight ounces once; chicken broth and barley-water, each three ounces once; beef juice and barley-water, each three ounces once. Those liquids which are to be given only once in twenty-four hours may be replaced by equivalent amounts of any of the following: Broth, milk, whey, slip, junket, strained soups, or gruels.

"*Soft Typhoid Diet.*—Add to the liquid or milk diet: (1) Ice cream, well cooked rice (boiled), broths may be thickened with it; (2) soft-boiled or poached egg on soft toast, blanc mange and milk puddings, calf's-foot and other gelatin jellies; (3) gruels, crackers, or bread softened in milk or broths, macaroni, finely minced and scraped meats. The increase in diet to be very gradual, one addition the first day, two the second, etc., scraped beef on the fourth or fifth day.

"*Typhoid Convalescent Diet.*—Add to anything already given the following in about the order mentioned: Soft parts of oysters, a tender sweetbread, chop, squab, game (small), chicken, fish, cutlet, steak, rare roast beef. Mealy baked potato may be given with any of the meats.

"*Full Typhoid Diet.*—6 A.M., milk; 8 A.M., breakfast, a cereal with cream and a small amount of sugar if desired, milk with tea or coffee, egg on toast with butter if desired; 10 A.M., bread and butter with gruel or milk, or broth with egg; 11.30 A.M., dinner, soup which may be thickened, some meat, as chop, or cutlet, or fish, or steak, or roast beef, or the soft parts of oysters, or sweetbreads, or squab, or small game, mealy baked potato, or rice, or macaroni, or spaghetti, with a simple dessert, as ice cream, or blanc mange, or milk pudding; 2 to 3 P.M., like 10 A.M.; 4 to 4.30 P.M., supper, creamed chicken or a bit of cold meat, as roast beef or chicken, bread, and milk flavored with tea or coffee; 6 P.M., cocoa or gruel or broth. At night, milk two to four times."

In the feeding of patients, the appetite has been made the guide and not the temperature. A number of patients have gone through an entire relapse, in some of whom the appetite held good and there was no decrease in the diet. Some of these were put back on a milk diet, but the writer is confident that it had no influence in shortening the duration of the relapse. It is impossible within the limits of an ordinary abstract to present all of the matter contained in this paper. The writer does not draw any conclusions himself,

but leaves that to the reader after study of the tables and the diet presented. A fair proportion of all the cases were heard from after being discharged. The recovery of normal conditions under liberal feeding is rather more rapid than in those with a restricted diet. A study of his cases does not show that relapse of the graver sort is not more common, nor are complications more frequent than where a strictly milk diet is adhered to throughout the course of the disease.

Chronic Copper Poisoning Among Artisans.—

H. A. Kurth, in the *Medical Record* of November 10, 1900, says that copper poisoning is very rarely diagnosticated, though it is increasingly common. Any copper or brass worker may suffer from the disease. It was among brass founders that the condition was first recognized, although filers, turners, stampers, grinders, and platers are more or less affected. The most dangerous employment is that of finishing or polishing. In the use of the wheel the air is filled with fine particles of copper dust. A small quantity of copper may be taken in with the food, though it is probable that the most important avenue of poisoning is by way of the respiratory passages.

Locally, copper is both an astringent and an irritant. Upon the respiratory tract its poisonous effects predominate, and later there is an involvement of the parenchyma of the lung. There is a destruction of the epithelium of the lungs with a development of connective tissue. This leads to purulent bronchitis and may furnish a favorable soil upon which the tubercle bacillus may grow. The copper which is taken into the intestinal tract soon sets up a chronic gastritis, and among old copper workers obstinate dyspepsia is a common symptom. The functions of the liver are also disturbed, and the spleen is enlarged in most cases. The skin is sometimes inflamed; the eczema of copper workers is frequently very obstinate. Frequently the hair has a greenish tinge, particularly in those where it is partially gray. The linen is often colored green, due to the copper dust coming in contact with the perspiration. A feeling of constriction in the throat and dry hacking cough and nasal irritation are prominent symptoms. Loss of appetite is the first and most invariable symptom. The question of copper poisoning should always be raised when a worker in this metal has dyspepsia, anemia, combined with nervousness and irritability.

The prognosis in most cases is good, and is invariably so if organic changes have not taken place. The treatment should be prophylactic. A wet sponge or cloth should be worn over the nose

and mouth. There is no analogy between lead and copper poisoning, and the iodide of potassium, such a useful remedy in lead poisoning, is of no value in copper poisoning. There is no specific, and the patient must be treated symptomatically. Phosphoric acid combined with stomachics and nerve tonics such as strychnine are the best remedies. Chief reliance must be placed upon prophylaxis and a change of occupation.

Spasmodic Wryneck and its Treatment.—

W. M. Leszynsky, in the *New York Medical Journal* of November 24, 1900, says that this condition is classed among the functional nervous disorders and is generally regarded as incurable. Two cases are reported, in the first of which there was a marked variable muscular spasm and a persistent tonic contraction in the upper section of the trapezoid muscle. There was a distinct hysterical element, though none of the phenomena of hysteria were demonstrable. A marked increase in the spasmodic movements was coincident with an increase of specific gravity in the urine, ranging from 1.030 to 1.034, associated with diminished excretion of urine and an excess of urates. Under rest and massage, combined with the application of a fixed dressing, the patient improved, finally making a fair recovery, there persisting a certain amount of tonic spasm limited to the right trapezius.

In this and another case injections of atropine were made into the affected muscles. In the first case it did not prove very satisfactory, but in the second it did, suppressing the symptoms for a period of five hours or more after the injection. The writer's experience with this treatment has not been sufficient to warrant a definite conclusion. It may prove exceedingly beneficial or even curative in some cases, but is unsatisfactory in others, and should never be considered except as an adjuvant to absolute rest and general management. The principal therapeutic reliance should be upon massage and methodical education of the muscles and their coordinating centers.

Calentura.—

In the October 13 issue of the *Philadelphia Medical Journal* is an article by Frank W. Foxworthy, who writes from Lavag, in the Philippine Islands. He says that this term is used to embrace any disease accompanied by a high temperature and which is of no great duration. Strictly speaking, it should be limited to the fever occurring during December, January, and February, which has the char-

acteristic of a simple continued fever with a small mortality. It is sometimes spoken of as malarial fever, tropical fever, gastric fever, or abortive typhoid fever. The symptoms, as he has described them, are a sudden rise of temperature, which may reach 106°. Rigor is not frequent. There is pain in the back and chest and sometimes vomiting, and the headache and malaise of high temperature. In southern and central Luzon the predisposition to the affection is especially marked in those who are not sufficiently protected at night, and where the body is thoroughly chilled. Those who are addicted to alcoholic stimulants were frequently affected. The natives are subject to the disorder, particularly those who go from the coast cities to the mountains of the interior, where the nights are cool. It is not regarded by the Spanish physicians as a malarial fever. The diagnosis between dengue, smallpox, and calentura is sometimes difficult, but the short duration of the latter disorder usually gives an early differentiation. The disease is rarely fatal. Out of 900 cases he has observed only three fatal instances, and these were in patients already reduced by hardship and disease, so that the disorder could not be said to be the primary cause of death. The writer regrets the exigencies of campaigning in the Philippines prevented a microscopic study of the blood in these cases. Whether it will turn out to be an obscure form of malaria or a distant relation of influenza, which often occurs in epidemic form, must remain for future investigation.

Residual Urine and Enlargement of the Prostate.—

A. G. Miller, before the Edinburgh Medico-Chirurgical Society (*Medical News*, Oct. 6, 1900), said that catheterization early established seems to be the ordinary way of dealing with the enlarged prostate and residual urine. The enlargement of the gland itself causes comparatively little trouble, but when the residual urine becomes large in quantity, then the real distress begins. In the normal bladder, when distention reaches a certain point, there is voluntary relaxation of the sphincter and an expression of its contents, due partly to voluntary contraction of the muscles and to atmospheric pressure. When hypertrophy offers a mechanical obstruction to the passage of the urine, no voluntary expression is performed. A case is noted in which the patient, instead of at once taking to catheter life, first voided urine, and then after a few moments made a direct voluntary effort to really empty the bladder. The result has been less getting up at night, amelioration of all symptoms, and reduction of the residual urine to a few ounces.

This is well worth trying in all cases before adopting the catheter. In locomotor ataxia, in which early symptoms of bladder difficulty manifest themselves, efforts to use the voluntary muscles for expulsion of the bladder contents will often delay the commencement of the use of the catheter for many years. It calls for faithful regular effort on the part of the patient, and if begun before profound bladder changes have ensued, much good can commonly be expected.

Movements of the Mouth and Pharynx in Insufficiency of the Aortic Valves.—

Hermann Schlesinger, in the *Wiener Klinische Wochenschrift* of October 4, 1900, had his attention called to this symptom in which there were pulsations in the mucous membrane of the mouth and nasopharynx synchronous with the action of the heart. This symptom has been studied by others; Muller, in 1889, noted pulsation in the mouth and pharynx in a case of aortic insufficiency. The same has been confirmed by Huchard, Litten, Andre, Pettit, and Gerhardt. The marked case which he saw led to his study of the same condition in some forty cases of aortic insufficiency. Pulsation was only noted in a few of the cases. To obtain the symptom, the patient must breathe quietly through the mouth; the posterior wall of the pharynx must be in full view, and this must be accomplished without mechanical depression of the tongue, as this interferes with these peculiar appearances. Very marked pulsation in these parts is only noted in cases in which it is also apparent in other parts of the body, and often the tonsils and base of the tongue take part in the same movement. In ten of the cases the base of the tongue was noted to distinctly rise and fall with each pulsation of the heart. An infrequent symptom is a coincident narrowing of the pharynx and oral cavities. The latter is brought about by a swelling of the tongue. Such a marked appearance was only noted in four of the cases.

Diphtheria Bacilli in Healthy Throats.—

F. P. Denny, in the *Boston Medical and Surgical Journal* of November 22, 1900, says that the occurrence of diphtheria bacilli in the throats of healthy individuals has given rise to much misunderstanding and has led to doubts of the value of bacteriological examinations. Cultures from 285 healthy individuals were sent to the Brookline Board of Health Laboratory during the past year. In only seven of these was the diphtheria bacillus found. The circumstances attending the collection of this material are such that the degree of exposure to diphtheria in given cases cannot be determined.

Cultures were made from fifty persons in connection with two outbreaks of diphtheria among whom the exposure had been considerable. Among these six positive cases were found. In the 235 healthy individuals only one positive case was found. The conclusions of the writer are that diphtheria bacilli are very rare in the throats of those who have not been exposed to diphtheria. They are found in those who have been exposed, and are most frequent in those living in crowded quarters and under unhygienic conditions. Healthy individuals with virulent bacilli can spread the disease and are as dangerous as mild cases of diphtheria, and ought, therefore, to be detected and isolated.

Myelopathic Albumosuria.—

T. R. Bradshaw, in the *British Medical Journal* of November 3, 1900, discusses a condition which is rarely recognized. It is essentially a disease of the cancellous tissue of bone, in which the osseous structures are infiltrated by a cellular growth with an ultimate disappearance of the bone structure. At the same time, in the urine is found an albuminous body which may be readily mistaken for ordinary albumin, but whose chemical reactions are somewhat different. It coagulates at a lower temperature than ordinary albumin and may be redissolved on boiling. It is precipitated by hydrochloric and nitric acids, the precipitate in each case being dissolved upon boiling. This condition of the urine is said to be pathognomonic of the disease. The disorder is progressive and fatal, treatment not seeming to influence the disease. The bones chiefly affected are the ribs, sternum, and the bodies of the vertebræ. A microscopic study of the infiltrated bone gives an appearance resembling sarcoma. It has been sometimes spoken of as a multiple myeloma. The disease is more frequent in men than in women, and occurs oftenest after the middle period of life.

A New Test Meal.—

A. E. Austin, in the *Boston Medical and Surgical Journal* of November 8, 1900, says that there are serious objections to all of the test meals commonly employed, due to indefiniteness of the amount of food elements employed and on account of the lack of fine division; the tube introduced is frequently clogged, which necessitates its removal, cleansing, and reintroduction. The meal employed in his experiments consisted of two drachms of dried egg albumen compressed into half-gramme tablets. These are to be taken with two glasses of water, and the contents withdrawn one

hour after taking. This amount of albumen is equivalent to that found in most test meals, but it is in a more soluble form. Animal albumen is better digested than the vegetable, and hence there is less residue. In such a test meal the starch digestion cannot be determined. The advantages claimed for the meal are that the freedom from residue permits of the contents of the stomach being more rapidly filtered, and if a microscopical examination is made the abundance of starch granules does not interfere.

SURGERY.

The Reefing Operation for Movable Kidney.—

E. W. Andrews, in the *Journal of the American Medical Association* of October 6, 1900, says that he formerly operated in floating kidney by uncovering the fibrous capsule, which was split into two flaps, everted, and stitched to the muscles. Two long catgut sutures were then passed deeply through the kidney substance and out

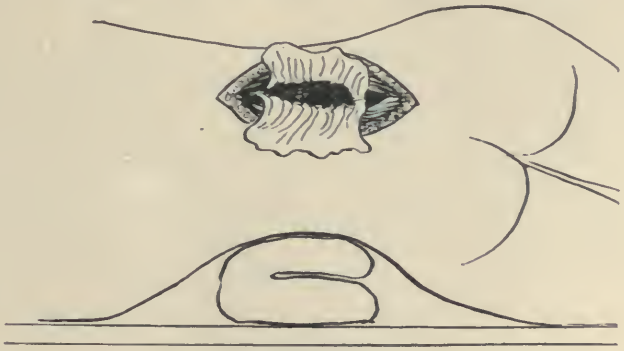

FIG. 1.

through the muscles. These stitches, if tied tightly, will cut their way through the parenchyma of the organ; in one case a hematoma developed which pushed the kidney from its new position and caused a partial failure of the operation. Under this operation about 25 per cent of relapses occurred. The kidneys are mobile organs, and the relation of the right kidney to the liver is such that if the kidney be anchored firmly, each movement of the liver will impinge upon the organ.

The new operation which the author has devised is based upon the work of Hahn in 1881. It consists in pulling up the fibro-adipose capsule and bringing it out through the wound. The writer has noted that this gave good control of the kidney, but it did not

anchor it so firmly as to interfere with the respiratory movements. His former practice had been to cut away this capsule, to get down to the fibrous capsule immediately surrounding the kidney. This outer capsule, which he now employs in anchoring the kidney, does not hold sutures well, but he utilizes the inner sac-like character of the structure by pulling it out through the wound (Fig. 1).

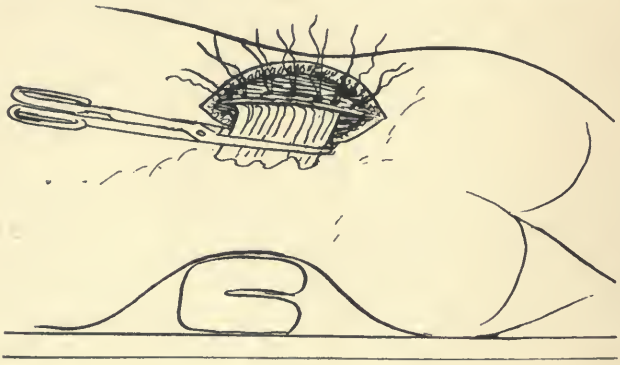

FIG. 2.

The fatty capsule is voluminous, and the kidney is drawn into its proper position only when a considerable proportion of the capsule is drawn through the wound. This necessitates the shortening of the capsule. The difficulty of suturing so friable a structure was overcome by passing the deep sutures through the capsule and the muscular structures in such a way as to include the capsule between the opposed edges of the wounds. In this way a firm hold was obtained (Fig. 2).

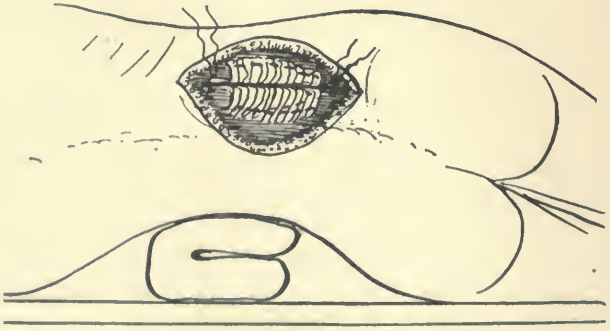

FIG. 3.

The operation is completed by everting the flaps which have been drawn out and stitching them to the muscles, after which the skin sutures are applied (Fig. 3).

Transplantation of the Patella into the Tibia.—

N. Senn, in the *Philadelphia Medical Journal* of October 27, 1900, has an account of the restoration of the tibia by transplantation of the patella. He says that repair of bone in man by transplantation from the lower animals is useless. Experimental research has also established the fact that transplantation of bone from one animal to another is negative. Bone may be transplanted from one human being to another.

The patient in whom the patella was transplanted was a boy 11 years of age. He was taken ill July 20, 1893, with fever and a rapidly increasing swelling involving the upper part of the leg and the left knee-joint. A large abscess formed below the joint. The patient presented the symptoms of progressive sepsis. The swelling involved the entire leg. A diagnosis of diffuse osteomyelitis of the tibia, complicated by suppurative inflammation of the knee-joint, was made. The shaft of the tibia was removed by free incision and the joint drained. This limited the progress of the infection, but suppuration continued for weeks. Owing to the absence of the shaft of the tibia, the upper end of the bone was gradually drawn upward. An attempt was made to restore the continuity of the tibia by transplanting the tibia of a young rabbit. The operation was a complete failure. The knee-joint in the meantime had become ankylosed, and it was decided to utilize the patella, which had become functionally useless, in restoring continuity of the bone. The patella and its ligament, with the overlying skin, were included in a horseshoe-shaped incision, with the concavity directed downward, and the flap, including the patella, was transplanted into the gap between the two fragments in such manner that the upper border of the patella was brought in contact with the lower fragment. The patella was not long enough to span the gap, and the upper border of the patella was perforated with a drill and the lower fragment impacted into it. Bony union was obtained between the patella and the lower fragment.

A few months later the patella was exposed by a vertical incision, divided obliquely, and the upper fragment was brought in contact with the upper end of the tibia. The two fragments of patella were then united with two strong catgut sutures, and the external incision sutured without making any provision for drainage. A false joint developed between the united surfaces of the patella, which was corrected by a later operation. A number of weeks later an *x*-ray demonstrated bony union between the patella and tibial fragments. The patient has now a useful limb and walks with a cane.

The Position of the Stomach.—

A. E. Maylard, in an address on the surgery of the stomach (*The Lancet*, Nov. 3, 1900), calls attention to an erroneous impression regarding the position of the stomach, which is still illustrated in our anatomical text-books (Fig. 1). This figure is taken from a popular text-book on anatomy, and the stomach is outlined in a transverse position. The cardiac orifice is only slightly above the pylorus, and the long axis of the viscus is almost transverse to the long axis of the trunk. The diagram approximately represents the normal position of the organ. The lesser curvature,

FIG. 1.—Erroneously assumed position of the stomach.

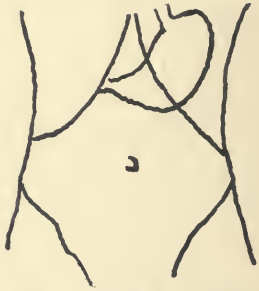

FIG. 2.—True position of the stomach.

instead of looking upward, is here seen to be directed toward the right. From four-fifths to seven-eighths of the organ is to the left of the middle line. That this is the normal position of the stomach in health is shown by the fact that the cardiac orifice is opposite the junction of the seventh costal cartilage with the sternum, while the pylorus lies from two to three inches below the ensiform cartilage, and from an inch to an inch and a half to the right of the middle line. The transverse position, as commonly figured, is based upon the observation of the organ as found in the dissecting room and at post-mortem examinations, when the diaphragm is relaxed and there is an absence of those supports which exist during life, which are quite sufficient to explain the altered position of the organ.

Surgery of the Cervical Sympathetic.—

Thomas Jonnesco (*Revue Illustrée de Polytechnique Médicale et Chirurgicale*, Sept. 30, 1900) since 1896 has performed 126 bilateral cervical sympathectomies. In some of them the three ganglions were removed, and in others the superior and middle; occasionally, only the superior ganglion. These operations were performed upon

ninety-seven epileptics, fifteen in cases of exophthalmic goitre, twelve of glaucoma, and two of essential migraine. The operations were commonly done on both sides at the same time. In each instance the operation was benign, and no atrophic troubles followed.

Of the ninety-seven epileptics operated upon, thirteen of the operations were performed in 1896. Of these, three are claimed to have been definitely cured, one ameliorated, and four were not followed by improvement. Of the thirteen, five have died since 1896. Seventeen of the operations were done in 1897; of these, six were cured, two ameliorated, five were followed by no improvement, and in four the results were unknown. In 1898 nineteen operations were done, with three recoveries, one improvement, five unsuccessful, and in ten the results were unknown. In 1899 twenty-seven operations were done, with two improvements, one failure, and in twenty-four the results were unknown. In 1900 there have been twenty-one operations with one recovery, two improvements, one failure, and in seventeen the results were unknown. In the period 1896–98 forty-six operations gave twelve cures and four improvements, which the writer regards as an excellent result.

Of the twelve cases of exophthalmic goitre, two were operated on in 1896, five in 1899, and three in 1900. All of the patients were cured or very much relieved. Recovery consisted in a modification of the general nervous condition of the patients, disappearance of the exophthalmus and the goitre, and an improvement in the tachycardia. A permanent cure was obtained in six cases operated on during 1896–7–8. The other four operations in this series present the secondary form of Basedow's disease; they showed a remarkable improvement, but were not cured. The writer prefers not to speak of results in the operations of 1899 and 1900, as sufficient time has not elapsed. He has employed the operation in twelve cases of glaucoma, and it has been largely adopted by specialists with most encouraging results. In two cases of migraine the immediate results were excellent, but the operation in both these cases is too recent to speak definitely of the outcome.

Operation for Ununited Intracapsular Fracture of the Neck of the Femur.—

G. G. Davis (*University Medical Magazine*, September, 1900) describes two cases in which operation was performed for ununited fracture of the neck of the femur. The first was that of a man 38 years of age who was seen one year after the accident which injured

his leg. During that time he had not walked. An intracapsular fracture of the neck of the femur was diagnosticated largely from the shortening, and from the fact that the trochanter moved downward when extension was employed. The operation consisted of an anterior incision beginning at the anterior spine of the ilium and going five inches downward in the long axis of the limb. The incision made in this way divides no important structures, and if it is not carried too far down the thigh there is no danger of wounding vessels of any size. It is not necessary to divide any muscles transversely in this incision, and by it the anterior surface of the joint is easily exposed. A V-shaped incision is made into the capsule of the joint. The edges of the bone are freshened. An incision on the outer side of the thigh over the great trochanter is then made, and when the head of the bone and trochanter are in line, which is accomplished by making extension and counter-extension, two pins are driven through the trochanter into the detached neck. In the first case steel pins were used. A few days after operation the patient developed a high temperature and was evidently septic. An incision in the anterior portion, opening the wound on the anterior surface of the thigh, revealed no pus, but when the opening in the incision on the outer side of the thigh was enlarged a small pocket of pus was found. This was removed and the toxemia subsided. At the time of the secondary operation the pins were removed. Some connection had already taken place, and a fixed dressing was applied. Quite firm union followed, the patient securing a good joint.

In the second operation, which was made upon an epileptic who had previously had a Chopart's amputation made upon the same leg some years before, ivory pins were used, the operation being done in the same way. The healing in the second case followed an aseptic course, and the result was as good as could be expected in an already damaged limb, the shortening amounting to from one to two centimeters.

The Operative Treatment of Cirrhosis of the Liver.—

C. H. Frazier (*American Journal of the Medical Sciences*, December, 1900) reports the case of a patient admitted to the University Hospital in May, 1900, who was a free user of alcohol and tobacco and had contracted syphilis in 1882. The heart was enlarged, and there was a systolic murmur. Both the spleen and liver were enlarged, the upper margin of the liver being on a level with the fifth rib, the lower border extending below the costal margin. The

abdomen was distended with ascitic fluid, and the lower extremities were edematous. Medicinal treatment gave no relief. The patient's admission was followed by four tappings about two weeks apart. The abdominal cavity was opened, and the parietal peritoneum was rubbed with a gauze pad, the omentum being sutured to the parietal peritoneum and to the margin of the wound. The fluid contents of the abdominal cavity were evacuated and the incision closed without drainage. Convalescence was uninterrupted. Subsequent to the operation the patient was tapped twice; at the first tapping 328 ounces of fluid was withdrawn, and at the second 96 ounces. Since that time there has been no reaccumulation of the fluid.

The writer takes this opportunity to give a review of the reported cases of operation for this condition; they are only fourteen in number, and excluding a certain number of cases in which death was due to causes more or less accidental or avoidable, the actual mortality of the operation is nothing. He believes that the operation has a future in certain selective cases in which the liver is cirrhotic, but in which there is reason to believe the liver cells are not devoid of function. The operation is indicated where internal medication and paracentesis have failed. The experimental work which has been done upon this subject is very interesting, and shows that it is important to gradually establish the collateral circulation. In case it is done abruptly, toxic symptoms develop, due to the effect of the passage of the blood directly from the digestive organs into the general circulation. Where the circulation is gradually established the capillaries take on the function to a certain extent of the liver cells, inhibiting the passage of unchanged substances from the digestive organs.

Appendicitis with Involvement of Distant Portions of the Peritoneum.—Andre Lapointe, in *La Presse Médicale* of October 10, 1900, calls attention to a complication of appendicitis which is not rare, and of which comparatively infrequent mention is made. Nélaton spoke of a special form of peritonitis having its origin in appendicitis, characterized by abscesses occurring in other portions of the abdominal cavity. The encysted foci of infection complicate the prognosis and surgical treatment of appendicitis, and often cause error in diagnosis.

A case is reported of a woman 20 years of age who was taken with severe abdominal pain, especially marked in the lower right portion of the abdomen. Some hours after the development of these symptoms she presented the classical symptoms of acute appendicitis. For five days the temperature was above 102° and the pulse above

100. Shortly after an examination of the abdomen on the sixth day there was an increase in the abdominal pain, vomiting was repeated, but the tenderness was restricted to McBurney's point and to a similar point upon the opposite side of the abdomen. Seven days later tumefaction was noted to the left of the uterus. A diagnosis of secondary pelvo-abdominal abscess was made. This was incised through the vagina and discharged a considerable amount of fetid pus. The defervescence following this operation was not complete and was only temporary. On the thirty-first day of the disease the patient was suffering with well marked signs of septicemia. The physical signs pointed to an accumulation in the upper portion of the abdomen, and it was believed that there was an abscess of the liver. An operation did not reveal the pus, but at the autopsy a subhepatic abscess was found.

Exsection of a Large Portion of the Abdominal Wall in an Operation for the Radical Cure of Umbilical Hernia.—

J. B. Bullitt, in the *Annals of Surgery* of November 10, 1900, describes the case of a woman 39 years of age who had a pendulous abdomen. It hung down like an apron on the thighs, the lower portion being on a level with the perineum when the patient was lying down, and two inches below this when standing. A study of the case showed that the peculiar condition was due to an umbilical hernia. Upon operation the diagnosis was confirmed; the contents were found to be mostly omental. The contents of the hernial sac were returned to the abdomen, and the opening in the abdominal wall closed in the usual way, with the exception of the skin and superficial fascia. The lower end of the incision in the skin and superficial fat of the abdominal wall was extended toward each flank, the lower portions of the incisions being joined by a transverse cut. In this way several pounds of fat was removed, after which the edges of the incision were united in the usual way.

The Operative Treatment of Ugly Ears.—

John B. Roberts, in the *Medical News* of November 24, 1900, says that much can be done by surgery to relieve asymmetrical or deformed ears that are a source of distress to the individual. Some persons are morbidly sensitive as to their personal appearance, and to these the relief afforded by surgery for deformed ears may be very considerable. We ought, therefore, to undertake such operations because they practically have no mortality; it is not necessary to confine the patient to bed, or even to take him from business. In

the repair of a lacerated or incised ear great care should be taken in placing the sutures so that the irregular surfaces may be accurately coapted. The position and depth of the sutures should be governed by the direction of the wound, and should be so placed as to preserve the shape of the organ. Fine silk is the best suture material. In case there is a loss of substance due to frost-bite or bruise, great care is necessary to prevent distortion. In some cases it may be desirable to operate upon the sound ear so as to restore the resemblance between the two ears. Large ears may be reduced by excising a wedge- or crescent-shaped piece from the central portion of the auricle. Ears which set out far from the head seem always to be very large, while in fact they are not larger than normal ears. This deformity may be readily remedied by removing a wedge-like strip from the cartilage. Sutures are then employed to close the wound and keep the ear in contact with the skull. A similar operation will relieve the deformity known as lap ears, in which the auricle drops forward because of a lack of development of cartilage.

Sponges, Ligatures, and Other Foreign Bodies in the Peritoneum.—

Carl Beck, in the *Medical Record* for November, 1900, says that sponges, compresses, and other large foreign bodies are sometimes left in the peritoneal cavity and make their way outward in a miraculous manner. Sometimes they make their way into the bowel and pass with the intestinal contents with comparatively little disturbance. Foreign bodies will either become absorbed, encysted, or enter the cavities of the intestines or uterus. Foreign bodies produce local vascular peritoneal adhesions, the contraction of which gradually pushes the body into the intestine. In one of the writer's cases a large gauze sponge was removed from an abscess in the abdominal wall, and in another case one passed by the rectum.

Sponges are not left in the abdominal cavity purposely, but ligatures are; silk is usually unabsorbable, but in some cases it may disappear. It is possible that, like gauze sponges, ligatures may also work their way into the intestine and thus be discharged without the knowledge of the patient. This may have been the case where the ligatures are said to have been absorbed. For this reason absorbable material should be used as much as possible, and sutures should be interrupted. If the suture does excite suppuration, it is much more difficult to get rid of a continuous suture than an interrupted one, because of the length of thread. Where symptoms rise from a buried suture, a way for the thread to make its way outward should be opened. In some cases absorbable sutures may act like foreign bodies.

Suppurative Pericarditis.—

C. B. Porter, in the *Boston Medical and Surgical Journal* of October 18, 1900, discusses the surgical treatment of suppurative pericarditis. He comes to the conclusion that incision of the pericardium is indicated in all cases of suppuration in this cavity. He unqualifiedly rejects aspiration of the pericardium as more dangerous than incision. This is due to the varying relations of the pleura and because of the anterior position of the heart whenever the pericardial sac is distended by fluid. Incision of the pericardium can be done quickly and safely by resection of the fifth costal cartilage, and in many cases it can be done under local anesthesia. In many cases of serous effusion open incision without puncture offers less risk and speedier cure than aspiration. The operation which the author devised in 1897 has been followed out by most recent operators.

THERAPEUTICS.

Therapy of Spermin.—

Martin A. H. Thelberg, in the *International Medical Magazine* for November, 1900, says that the "glandular extract" business has been carried to such extremes that there has been a reaction and an attendant distrust of all these products. He accords Poehl the position of the most exhaustive and thorough scientific worker in the study of the action of spermin. As a result of his labors we have gained at least a glimpse of the chemical physiology of metabolism, as well as of the factors of immunity. The best statement of Poehl's views that we have yet seen is the following:

"It will be remembered that a substance possessing very decided oxidizing properties was isolated by Poehl from orchitic juice, to which he gave the name of spermin. Further investigations proved the presence in smaller amount of this same base in the blood and most of the closed or ductless glands of both male and female. From this wide distribution, and on the strength of its chemical composition, Poehl considers it a decomposition product of nucleo-albumen, and especially of the leucocytes. This spermin forms definite crystallizable salts with various acids—the Charcot-Leyden crystals being but inert spermin phosphate. If, however, spermin proper or its chloride is added to a solution of gold, or copper chloride in which powdered magnesium metal is suspended, the odor of fresh semen is observed and energetic oxidation of the

magnesium takes place. The comparative proportion of spermin to the magnesium does not seem to matter, proving its action as catalytic and similar to various ferments. The same action of spermin on the blood is proven by the peculiarity it possesses of restoring the oxidizing power to blood which has had this same property reduced or annihilated by carbon dioxide or chloroform. It has also been proven that spermin does not only, as do several other agencies, cause increased leucocytosis, *but it increases at the same time the alkalinity of the blood*, as proven by Professor Senator and others. Poehl claims that it is just this oxidizing action of spermin that changes the leucomaines, resultant from metabolism, into urea, thereby preventing autointoxication, which is so characteristic of the diseases in which the alkalinity of the blood is reduced, as in diabetes, nephritis, carcinoma, tabes, uric acid diathesis, neurasthenia, etc. With diminished alkalinity of the blood, the products of metabolic changes, or, in other words, the products of nucleoalbumen, appear as intermediate xanthin substances and insoluble spermin phosphate, instead of the urea of the normal tissue changes. If these observations and theories are correct, the deductions would be that spermin acts as a true 'antitoxin' in diseases coming under the heading of perverted metabolism."

Dosage and Untoward Effects of Diphtheria Antitoxin.—

W. H. Park, in the *Archives of Pediatrics* for November, 1900, has two articles, one upon the dosage of diphtheria antitoxin and the other upon the possibility of eliminating the deleterious effects while retaining the antitoxic effects of sera. He says that the dosage of antitoxin should be sufficient to neutralize all the poison which has been formed and introduced into the blood. The tissues that have already been altered by the toxin cannot be restored. The antitoxin acts in a somewhat analogous manner to the way in which acids are neutralized by alkalies. The dosage used by different men varies within very wide limits. Some observers begin in mild cases with one thousand to fifteen hundred units, in more severe cases two thousand units, and older children three thousand units; these doses to be repeated within twelve to twenty-four hours if there is no improvement. On the other hand, there are those who give from four thousand to eight thousand units to a mild case, and from forty thousand to sixty thousand to the most severe. The writer, at the Willard Parker Hospital, has been giving the alternate cases larger doses than their fellows. One-half the cases received one thousand units, and the

other half two thousand, the whole amount being given on admission, and the dose not being at all influenced by the severity of the disease or the age of the cases. So far as the mortality tables alone show, of ninety-three cases treated in this way, there was no marked difference between the one thousand unit series and those receiving two thousand units. Rash developed in ten of the forty-two cases treated with one thousand units, and in twelve of the fifty-one receiving two thousand units; in no case did joint or severe constitutional symptoms develop. The local conditions did not clear up as rapidly as in those in which the smaller dose was employed. He is of the opinion that in two or three cases larger doses would have been of benefit; in some, three thousand to five thousand units should have been given.

In a series of cases, every alternate case was treated with from two thousand to six thousand units, according to the severity of the disease, and the other half with just double that amount. No appreciable difference was noted in the outcome of these two series of cases. From these experiments the author recommends the following dosage of diphtheria antitoxin: Very mild cases, one thousand to fifteen hundred units for the first dose; moderately severe cases, two thousand to three thousand units for the first dose; very severe cases, four thousand to five thousand; laryngeal cases, according to their severity, two thousand to five thousand units. At the end of twelve hours after the injection if the inflammation is advancing, or at the end of eighteen hours if it has not begun to subside, a second dose of antitoxin should be injected.

The above observations of Park are a distinct addition to our knowledge of the dosage of antitoxin, which has heretofore been very obscure. He does not agree with those observers who advocate from forty thousand to sixty thousand units in very bad cases, but thinks it is better to give too much rather than too little. As a rule, however, moderate doses accomplish as much as very large ones.

The writer has made a number of experiments with antitoxin to ascertain if possible what the substance is that causes the rash and constitutional reaction. It cannot, with our present knowledge, be separated from that portion of the blood serum which in susceptible persons produces disagreeable effects. The fact that the antitoxin serum from some horses is slightly deleterious should lead us to further efforts to secure a serum which should be antitoxic and devoid of deleterious properties. It is possible that a selection of the animals employed in the preparation of the antitoxin may lead to such results.

Massage of the Eyeball.—

Casey A. Wood, in the *Journal of the American Medical Association* of November 17, 1900, says that massage is one of the latest remedies in ophthalmic surgery. It may be carried out by an indirect method, using pieces of cotton-wool mounted upon sounds, with or without buttonheads or other devices. Indirect massage with the bulb of the finger placed on the skin of the lids is to be preferred. In some cases direct massage of the eyeball may be employed, but in most instances the indirect method by stroking movements with slight pressure on the exterior of the eyelids is quite sufficient and less difficult to carry out.

Indirect massage should never produce pain and rarely more than a passing discomfort. If the massage is employed in the treatment of the lids, the patient should be told to look down in treating the upper lid, and up in treating the lower lid. If the cornea is to be treated, the patient should look directly forward. The duration of each treatment should rarely exceed three or four minutes, and the movements should be circular, centrifugal, and centripetal. To-and-fro pressure is required to meet the conjunctival areas about the inner and outer canthi. The treatments should be at intervals of from one to three days.

In beginning the massage he instils a drop or two of cod-liver or castor oil, which is thoroughly distributed through the conjunctival sac. Mercurials can be added to the oil and can often be used in quite large doses if they are prepared with care. An ointment of the nitrate of mercury made with the brown cod-liver oil instead of lard, allowed to stand for a week or ten days, and then diluted with from 25 to 50 per cent of cod-liver oil, is useful. It is dropped from the end of a glass rod into the lower sac. If the massage movements are begun at once, the smarting is very slight. Such a method of treatment is useful in chronic infections of the conjunctivæ, in ulcers of and deposits upon the cornea, for the temporary relief of glaucoma, and for some forms of retinal embolism. Generally speaking, massage is contraindicated in acute processes.

Suprarenal Capsule in Diseases of the Lower Air-passages.—

Samuel Floerschiem, in the *Medical Record* of November 17, 1900, has used desiccated suprarenal in acute tracheo-bronchitis, chronic bronchitis, bronchiectasis, congestion and edema of the lungs, hemoptysis, and pulmonary tuberculosis. He always gives the powder in the form of three-grain capsules, which are placed in the mouth and thoroughly chewed without water. The effect of

the gland taken in this way is noted in from three to ten minutes. This method of administration is said to be much more efficient than the giving of the gland in the form of capsules and its being immediately carried to the stomach. It is said that the juices of the stomach interfere with the action of the remedy.

In acute tracheo-bronchitis, in thirty-two cases the suprarenal powder lessened the frequency and severity of the cough. In some cases the cough entirely disappeared and was absent from ten minutes to nine hours, according to the severity of the attack. The expectoration was decreased in amount, the subjective sensations in the throat and chest were greatly improved, and the respiration became easier. In acute bronchitis when the suprarenal was administered in this way in doses of three grains every two hours, it generally aborted the attack. In the cases of chronic bronchitis and bronchiectasis, there was a lessening of the expectoration and a subjective improvement. In congestion and edema of the lungs, the slight dulness over the posterior portion of the chest disappeared, and with it the cough and watery expectoration. In bronchial asthma due to nervous influences, the suprarenal powder had no influence over the attack, but if it was accompanied with hyperemia the drug was useful.

In eight cases of pulmonary tuberculosis the expectoration and cough were diminished by the suprarenal powder within fifteen minutes. Patients breathe more easily and feel brighter. In sixteen cases of hemoptysis from various causes, the suprarenal powder, on being chewed, stopped the bleeding from the lungs in less than a half-hour; in six cases it stopped in five minutes.

Treatment of Severe Cases of Diphtheria with Saline Infusion.—

E. Laslett, in *The Lancet* of October 20, 1900, says that under the influence of the antitoxin treatment numerous cases of diphtheria recover that would have died in the first few days of the illness. The later stages of some of these are disappointing. Sometimes as early as the seventh day of the illness signs of heart failure appear, accompanied by persistent vomiting. Post-mortem examination shows extensive fatty degeneration of the heart muscle in nearly all cases. The writer reports fifteen cases treated in this way. These were chosen because of their severity, the main indications being a rapidly spreading membrane with nasal discharge and fetid breath. The infusion was carried out as soon as possible after the admission of the patient and was continued during the first two days and occasionally the third day. Injections were made in

the skin below the right breast. As a rule the injections caused very little discomfort, from ten to fifteen ounces being given in a half-hour. After injections, the pulse was noted to rise rapidly. The restlessness of the patient is relieved. The urine of these patients is commonly voided unconsciously, and thus it was impossible to determine diuresis. Of the fifteen patients, seven died, and eight recovered after a more or less eventful convalescence. The judgment of the writer is that the treatment had some influence in diminishing the severity and frequency of heart failure. The amount of antitoxin varied from nine thousand to eighteen thousand units. Most of the patients were small children, only one of them being an infant; the oldest was six years of age. The remarks found in the table of the cases show that they were all severe. All of those with hemorrhage died, excepting one. Of those which recovered, the majority were in the hospital from two to three months.

Ichthoform as an Antiseptic.—

Professor Aufrecht, in *Merck's Archives* for November, 1900, says this compound is a mixture of formaldehyde and ichthyol. It is a blackish-brown, amorphous, almost tasteless and insoluble powder. Its antiseptic powers were found to be equal to those of dermatol and much superior to iodoform. In testing its toxic effects it was suspended in physiological saline solution in various concentrations, and injected either into the peritoneal cavity or veins of guinea-pigs. The experiments showed that the substance is almost devoid of poisonous properties. A number of observations were made upon the urine of a patient suffering from chronic intestinal catarrh who was excreting large amounts of indican. Sixty-grain doses were administered, and an accurate quantitative estimation was made of the indican for ten days. On four of these, sixty grains of the drug was given. On the days in which the drug was first employed the indican was scanty, and became entirely wanting on the third day; after stopping, the indican reappeared.

Oxygen and Steam Combined with a Special Inhalation Mixture in the Treatment of Pulmonary Diseases.—

Clement A. Penrose, in the *Johns Hopkins Hospital Bulletin* for November, 1900, has found that oxygen heated and mixed with steam is more readily absorbed and less trying to the throat and tongue, and consequently more agreeable to the patient, than pure oxygen. Passed through boiling water to which has been added creosote, oil of turpentine, and compound tincture of benzoin, it

has a marked antiseptic effect on the mouth and tongue. He has found that inhalations of this kind are very useful in pneumonia. Three cases are reported, two of which were of purulent bronchitis, one in an infant, and the third a case of pulmonary tuberculosis. Both of the cases of bronchitis were cured, and the patient with tuberculosis was greatly improved. In the latter case the sputum rapidly lessened and the pus organisms disappeared. The physical signs all disappeared from the chest with the exception of consolidation. In the four months he was under treatment he gained twelve pounds. The power of oxygen in pulmonary disorders is admitted, and its beneficial effect is enhanced by being combined with steam and a vaporous inhalation mixture. Inhalations, to be efficient, should be systematic and should last ten or fifteen minutes. Indispensable adjuncts are breathing exercises and general gymnastic work.

Physical Exercises in the Treatment of Pulmonary Tuberculosis.—

Parker Murphy, in the *Albany Medical Annals* for November, 1900, says physical exercises play an important rôle in the treatment of pulmonary tuberculosis. They are contraindicated where there is temperature. One of the most important movements relates to the arm and chest. He instructs patients to breathe deeply even when they have fever. After the latter subsides, the patients are told to continue the deep respiratory movements, and with each inspiration raise the arms slowly to a horizontal position and then over the head until the arms meet. As the arms are brought down the patient expires. This brings into action the supplementary muscles of the chest and the shoulders, imitating the effect of altitude upon the respirations, expanding the chest, and bringing into action unused portions of the lungs, thus securing better ventilation. The movements may be varied, but the underlying principle is the same. Whatever movements are ordered, they must always be accompanied by a voluntary deepening of the inspiration. Such exercises are of quite as much importance in convalescence from pneumonia and pleuritis as in cases with pulmonary tuberculosis. In all the inflammatory maladies of the lungs there is a tendency to stasis and passive congestion. To correct this there is nothing better than deep inspirations.

Rectal Feeding in Peptic Ulcer.—

George G. Sears, in the *Boston Medical and Surgical Journal* of November 1, 1900, reports two cases of ulcer of the stomach, one of which was operated; in the other the condition had existed for about

Medico-Chirurgical College,
Philadelphia.

forty years. The latter patient was 66 years old and had been subject to attacks of indigestion, resembling those which brought him under observation, since his 25th year. The prominent symptom was pain, relieved by vomiting. Both of the cases were treated with large enemata. The best treatment for peptic ulcer is complete rest of the stomach, and this can only be effected by rectal feeding. Ordinarily, intolerance of the rectum is early developed, but with care the amount that can be used for a rectal injection can be considerably increased without materially increasing the intolerance of the rectum. The absorption of fluid from the intestine relieves the excessive drain from which these patients suffer. A high injection of plain water should be given early in the morning. At the end of an hour, if this has not come away, the rectum is washed out with soap-suds. Peptonized food is then given through a half-inch soft-rubber tube, the attempt being made to get the food beyond the sigmoid flexure. It is possible to insert a tube of this caliber from eight to twelve inches into the rectum. The fluid is injected slowly, the tube being gradually withdrawn. The rectal feedings are repeated at intervals of six hours.

Myrtol in Affections of the Respiratory Tract.—

Solomon Solis-Cohen, in *Merck's Archives* for November, 1900, says that the action of this drug is much like that of the terebinthinate and balsamic groups. Myrtol is an oily liquid of a slightly yellow tint, of pungent taste and characteristic odor. It is obtained from myrtle oil by fractional distillation. It is probably a mixed product containing substances which are both sedative and stimulant. Like all of its class it is eliminated by mucous membranes generally, and by those of the bronchi and genito-urinary tract particularly. The best results that the writer has had with the drug are in the cases of increased bronchial secretion, dilated bronchi, and fibroid tuberculosis with bronchiectatic abscesses; also in bronchial asthma. In all these cases he has had failures as well as success, but the drug seems to have a decided power of promoting healthy and diminishing unhealthful secretions. It should be employed in cases of chronic or subacute inflammations of the respiratory tract or the urinary tract in cases in which sandalwood oil, terebene, and turpentine have failed. It is especially useful in suppressing a useless, annoying, and unproductive cough. The dose varies from five to fifteen minims in the form of emulsion or dropped upon sugar or in capsules. It may be used in the form of inhalation, and in this way promotes expectoration in the chronic affections of the air-passages.

OBSTETRICS, GYNECOLOGY, AND PEDIATRICS.

Infant Feeding.—

He who reads A. Jacobi's article (*Pediatrics*, Nov. 1, 1900) on artificial alimentation presented to the Children's Section of the Thirteenth International Medical Congress can scarcely doubt that it is one of the most important communications upon this much-vexed topic that has been made. We cannot give more than a brief abstract of the conclusions which he reaches, and in passing can only mention the abundance of material, both of a literary and practical sort, which he brings to the study of the subject.

Substitutes for mother's milk are made in accordance with chemical analyses of women's or of cows' milk. The difficulty at the outset is that the analysis of women's milk is by no means constant; the percentage of albumin varies least, that of sugar and fat considerably, in different individuals. In the same individual it varies from hour to hour, and notwithstanding these changes the baby thrives. There is a difference between the casein of women's and cows' milk, but it is not yet clear whether the albumin, which is found more abundant in human milk, is associated with or derived from the casein. There are some observations that prove that the caseins of different animals are not identical. A remarkably close relation is found between the percentage of casein in milk and the rapidity of growth of the animal. In man, where the weight is doubled in 180 days, the percentage is the least, while in the rabbit, in which the weight is doubled in six days, the percentage is highest. The conclusion is therefore unavoidable that every animal has its own specific milk adapted to the wants of its own offspring, and that the belief that the milk of one animal can be substituted for that of another is a mistake. Undue attention has been given to the organic constituents of milk and too little to the mineral content. Cows' milk contains twice as much phosphorus as women's milk. When cows' milk is substituted for women's milk, chloride of sodium should be added. The salts of calcium are present in greater proportion in cows' milk, but this difference can safely be neglected, as nature permits of a more generous attitude in the feeding of infants than do laboratory tyrants.

In the writer's opinion only one great advance has been made in infant feeding, and that is the more or less universal introduction of heating cows' milk and all other substances employed in feeding infants. Heating to 100° not only expels the air, but destroys many

pathogenic germs. Even when milk is heated below the boiling point, while not rendered absolutely sterile, it does prevent lactic acid fermentation. The taste of milk begins to change at 75° F. The method known as Tyndallization, by which the milk is heated upon successive days, is a valuable method of sterilizing milk. Three such daily boilings are sufficient to completely sterilize the milk in a Soxhlet apparatus. That heating, however, changes milk is true; therefore a temperature no greater than 65° to 68° should be employed. Scurvy results from a too exclusive diet of sterilized milk. Percentage feeding as carried out with the aid of a milk laboratory does not give an exact equivalent of mother's milk, because the latter may have the albumin vary from 0.9 to 1.3, the fat from 2.7 to 4.6, and the sugar from 5.9 to 7.55. Experience has shown that upon this modified milk many infants thrive, but some of them develop rickets. In some cases mild forms of craniotabes developed, and they required additional phosphorus, fat, and antirachitic treatment. There is no food on which every baby will thrive, not even breast milk. One objection to the laboratory method of modifying milk is its expense, which may be greater for feeding the baby than the average income of the working man.

The milk-sugar in women's and cows' milk is probably not identical. The milk-sugar on the market is often impure; consequently it is advisable to substitute cane-sugar. The practice of adding cream to cows' milk is by no means advisable. Those who contend that the fat content of human milk is so much greater than that of cows' milk persistently overlook analyses which show it to be above three per cent. Moreover, the fat of cows' milk differs from that of women's milk.

The writer has always preferred cereal decoctions for the dilution of cows' milk, partly because and partly in spite of their containing starch. The prejudice against the addition of the carbohydrates to infant food has been largely based upon clinical experience with large quantities of starch. Whenever flours are mentioned, the question is always raised not of a rational administration, but of an excessive or exclusive supply, and the terrors of the latter are attributed to the former. This is not a very conclusive method of reasoning, and not exactly "scientific."

Recurrent Vomiting in Children.—

J. P. Crozer Griffith, in the *American Journal of the Medical Sciences* for November, 1900, gives a number of histories of recurrent or cyclic vomiting in children. The first case was that of a boy born

January 5, 1895, who after July of that year suffered through failing appetite and increasing indigestion. Later his health and digestive power improved. There was irregular fever during most of the summer of 1896, and again in the summer of 1897, and to a less extent in 1898. The fever seemed to have its origin in the intestinal tract. Up to this period in his life the recurrent vomiting had been apparently due to acute indigestion. He then began to have attacks of vomiting not associated with indigestion, occurring at intervals of about three weeks. The vomiting always came on without any decided symptoms, while apparently in good health. The appetite would lessen for a few days, he would become constipated, and high fever would develop, with vomiting. There was decided prostration, restlessness, rapid respiration, thirst, and retracted abdomen, with rapid loss of flesh. Convalescence from the attacks was rapid.

A second patient was nine years of age. The first attack of recurrent vomiting occurred in 1894; the seizures during 1895 lasted about one day. Two other cases are reported. All four cases bear a close resemblance to each other. The second case was one of unusual severity, and the third and fourth cases were fatal. Prodromal symptoms are often absent in this condition, and when they do occur they are often insignificant and indefinite, consisting of malaise, coated tongue, loss of appetite, and possibly headache. Vomiting is the first and most striking symptom of the attack itself, and from the outset is often obstinate and oft-repeated. The ejected matter is not altered; later it may contain mucus or blood. Generally everything put into the stomach is promptly vomited. The constipation is a constant but not necessary symptom. Retraction of the abdomen is commonly present, but is not greater than is noted in any asthenic state. Abdominal pain is entirely absent in cases which belong strictly to this category. This constitutes one of the most striking symptoms of tabes, the latter being accompanied by severe pain. Thirst is commonly present, due to abstraction of liquid from the system. There is no rule about temperature; sometimes it is elevated and sometimes not. Changes in the urine are described by some writers, though they are by no means constant. Convulsions are noted in some of the attacks. The duration of the attack is variable, and recovery is generally rapid. In one reported case the attack lasted five days, although improvement began on the third day. Two or three days may be taken as the average duration. The frequency of the attacks varies greatly and they come at irregular intervals. None of the

cases so far reported exhibit a distinct tendency toward periodicity. The prognosis is generally favorable, but cases do die in the attacks. As the child grows older the attacks recur with diminishing frequency, and they sometimes disappear spontaneously. Treatment is most unsatisfactory, as any attempt to abort an attack is sure to fail. Profound ignorance of the exciting or more remote causes makes treatment between attacks of comparatively little value.

Treatment of Whooping-cough.—

J. W. Wiltse, in the *Albany Medical Annals* for October, 1900, says that whooping-cough is unfortunately regarded by the laity as a benign disease; in fact, its mortality ranks fourth in the so-called children's diseases. According to Keating it ranks third in the fatal diseases of children in England, where deaths from whooping-cough were only slightly exceeded by those from measles, the mortality of whooping-cough being nearly one-half that of scarlet fever. Another author says, with the exception of measles and diphtheria, whooping-cough is the most fatal of the infectious diseases, having been responsible for no less than 6245 deaths in two large towns of England and Wales during the year 1896. The State Board of Health in Michigan says whooping-cough is a communicable disease which is spread from person to person directly and probably indirectly, and in Michigan causes more deaths than smallpox. The indifference of the laity to the gravity of the disease is shown by the fact that they will isolate a patient suffering from diphtheria or scarlet fever, but the patient with whooping-cough is allowed to go about as he will and mix with other children.

The writer urges that the disease should be recognized early and the patient promptly isolated, after which a rigid quarantine should be maintained. In treating the cough the patient should be confined to a large, well ventilated room, so located that he can have as much sunlight as possible. The room should be prepared as for other infectious diseases, all hangings and other useless furnishings being removed. It might be practicable for him to have two rooms, so that he could be moved from one into the other and thus afford thorough airing, but in the majority of cases this is not possible. In mild weather the patient should be allowed to be out in the air and sunshine, but care should be taken to prevent his coming in contact with other children, and no violent exercise should be indulged in, as this increases the number and violence of the attacks of coughing and the risk of bronchial and pulmonary complications. The diet should be nourishing and easily digestible. Quinine has proved

serviceable in the practice of the writer. Bromoform and antipyrin, both having the highest indorsements, are really symptomatic remedies. Roskam's modification of Moncorro's method, which consists in the application to the glottis of a one-third-per-cent solution of resorcin every four hours during the day, and when possible once or twice during the night, has shown the best statistical results. It has proved most efficient in shortening the disease in children under one year of age in whom the average duration has been only eight days. This fact may be well borne in mind because of the extreme fatality of whooping-cough in very young children.

Fatal Lead Poisoning in Children.—

Allen Baines, in the *Canadian Practitioner and Review* for November, 1900, details the history of two brothers who were poisoned with lead. The entire family were affected by the poison, excepting an infant at the breast, which escaped. The lead came from the use of firewood composed of staves of old barrels which had contained white lead. The meals had been cooked and the rooms warmed with this wood; hence the food as well as the atmosphere was contaminated. One of the patients was two years and eight months old and had never had any illness. On November 6 he had a well marked convulsion lasting about five minutes. He recovered from this attack and was quite well until the evening of the 19th, when there were four convulsions in four hours, the duration being from four to six minutes. Following the last group of convulsions the child was practically unconscious, the eyelids were half-closed, the mouth slightly open, the tongue moist and coated, the breath and odor from the body offensive. The right hand and arm were flexed, the left extended, with occasional twitching of the right fingers. The respiration was slow and irregular, the abdomen contracted, and the legs extended. The deep and superficial reflexes as well as Kernig's sign were absent. The patient could be roused by a painful impression. The condition of the patient remained practically the same for three days. At the end of this time convulsions occurred, and there was strabismus with dilated pupils. After these symptoms set in respiration and the heart's action failed. A post-mortem examination was refused.

A brother of this patient, aged five years and nine months, was admitted to the hospital for sick children December 4, 1899. For three or four days before that he had suffered pain in the abdomen, and the bowels were obstinately constipated. On the morning of admission he had a general convulsion. Seven or eight convulsions

occurred in about twenty minutes, some being general and some unilateral, mostly on the right side. The symptoms were substantially the same as those in the first case, and the length of time until death, about four days, was the same to an hour. Four ounces of urine was obtained, which was found to contain four milligrammes of lead. The post-mortem examination showed nothing abnormal. This was followed by bacteriological examinations, notes of which are given; there is nothing in the changes in the viscera that point to lead poisoning.

Determination of Eye Defects in Schoolchildren.—

Louis C. Deane, in the *Medical Record* of November 24, 1900, describes a method which he has employed in the examination of a large number of schoolchildren, which reveals the most pronounced ocular defects, and is at the same time practicable, as by this means he is able to examine from twenty to thirty pupils in an hour.

In making the test, five children are placed in line opposite five charts. Each child is directed to cover the left eye with the left hand and to read the smallest letters on the chart. One after the other this test is made, and if they can read the lowest line, of course vision is 20–20. Whatever type they may be able to read gives the vision of the right eye. Those who are able to read the smallest type are then tested with a +.75 D, and so on to +1.50 D, noting which one blurs the 20–20 line. If +.75 D reduces the visual acuity, the case is considered to be normal. If +1.50 D is the first glass that blurs the print, the case is considered as hypermetropic. The screen test is used to determine muscular balance. Minus lenses can be used for those who show defective vision, and the strength of the weakest noted. By it as little as two degrees of an esophoria is easily noted. In this rapid testing an effort is made to have the examination qualitative and not quantitative. It is easily and rapidly conducted, and by it those with normal eyesight and without ciliary strain or muscular imbalance are easily eliminated. Hypermetropia and myopia with or without asthenopic symptoms are easily detected. Astigmatism is not brought out by the examination, but poor vision from this cause, as well as that which is not obviously due to other refractive conditions, is easily detected, and the child reserved for further study. The author particularly calls attention to the rapidity and practicability of the examination.

Seventeen hundred and forty-seven children were examined in this way, the results of which are found in the appended table:

	Number of examinations	Average age.	Marginal blepharitis.	Heterophoria.		Heterotropia.		Vision 20–20.	Anisometropia	Hypermetropia.	Myopia.	Poor vision undetermined.
				Eso-	Exo-	Eso-	Exo-					
Grammar School:												
Girls	820	14½	3.3	2.	4.6	.85	0.6	83.7	7.3	26.3	7.7	1.7
Boys	506	13⅓	3.3	1.5	4.1	1.18	1.5	86.4	8.7	20.3	11.06	1.3
High School:												
Girls	145	16½	1.3	2.7	11.	1.3	0.	73.1	16.5	22.7	22.	2.
Boys	276	16½	1.8	0.4	5 7	1.5	0.36	85.8	7.6	13.7	14.	1.4

Pelvic Massage.—

E. E. Montgomery, in the *Therapeutic Gazette* of November 15, 1900, has an instructive and conservative article on the use of massage in the treatment of the diseases of women. The adoption of the method has been much slower than its merits deserve. In part this has been due to some unreasoning prejudices, but more to the fact that the method is difficult to acquire, and that its introducer and chief advocate was not a practitioner of medicine, but a teacher of gymnastics. Pelvic massage must be practiced by the physician himself, as the delicacy of the organs which are to be treated requires a thorough knowledge of their anatomy. In performing pelvic massage the uterus is fixed from below by the fingers of one hand. The other hand, in contact with the abdomen, makes a rotary motion until the uterus is outlined. If the uterus is free, it can be readily projected against the abdominal wall, and its entire surface can be manipulated. Massage of this kind markedly influences the circulation, and there is a rapid absorption of inflammatory exudate. The influence of the treatment is most readily appreciated in cases where the uterus is fixed by recent adhesions. In massage directed to the adherent ovaries the rotary motion is over so slight an arc as to be a mere trembling of the fingers. Frequently pressure is best made with the point of one finger. The treatment should last from five to ten minutes, should be daily, and should be especially employed during the menstrual flow, when pelvic adhesions are most easily overcome. In the beginning all manipulations should be gentle, and especial care should be exercised not to give pain. Pelvic massage is especially useful in uterine displacements; chronic inflammation of the uterus, tubes, and ovaries; in subacute and chronic peritonitis; in removal of pelvic exudates and adhesions after pelvic operations. It is not to be used in pus cases, ectopic gestation, cysts, recent internal hemorrhage, nor in malignant disease. In old pus cases the method may be used.

Atresia of the Larynx Due to Faulty Intubation.—

W. P. Northrup, in the *Archives of Pediatrics* for November, 1900, reports a case of this kind. In this connection we would call attention to a recent abstract in MEDICINE, in which a faulty direction of the tube and the method of overcoming it was carefully described. O'Dwyer said that the cause of stenosis following intubation in laryngeal diphtheria can be summed up in the one word, traumatism. It may be due to faulty tubes or to imperfect technique. In the case reported it was due to bad operating, as the tubes were of the latest pattern and well adapted to the case. Five intubations were required and two extubations, and the operation was performed by a beginner. O'Dwyer, in his communication, endeavored to impress upon the profession the importance of skilled hands in the performance of the operation and a proper selection of tubes. A failure in either of these matters brings reproach upon the operation and diminishes the chances of recovery. The specimen which the reporter presented showed scar tissue extending across the caliber of the larynx at the level of the cricoid ring. It was an hour-glass constriction, and a probe passed from above was arrested in a cul-de-sac. The closure was complete; no air could possibly have passed. This accident rendered tracheotomy necessary, and through the operation wound an endeavor was made to open the channel from below, but without success.

A Simple Method of Writing Prescriptions for Children.—

Max Huhner, in the *Medical Record* of November 24, 1900, gives a simple dose method for prescribing for children. It is based on Cowling's rule that the dose suitable for a child is obtained by dividing the age of the child at the next birthday by 24. The simple method of writing the prescription is to have it contain twenty-four doses; hence for a child one year of age the amount in the prescription would be exactly the adult dose; if the child is three years old, three times the adult dose; if ten years, ten times. The method is simple and avoids a complicated calculation. It holds good for all those remedies to which Cowling's rule is applicable. In the case of opiates the amount must be diminished one-half.

Treatment of Scarlatinal Nephritis.—

R. C. Kemp, in *Pediatrics* of October 15, 1900, says that one of the most valued agents in the treatment of nephritis is normal, or rather decinormal, saline solution. Such a solution is prepared by

adding a drachm of salt to a pint of sterile water; it is a diuretic and at the same time an eliminant, and it has a stimulating action on the circulation and respiration. It may be slowly and continuously introduced into the intestines by enema, or under the skin by infusion, or into a vein. He has used enteroclysis with the fluid at a temperature of 110° to 120° F., giving it as frequently as three or four times a day in uremic convulsions, uremic coma, dropsy, pulmonary edema, and pleurisy with effusion. A continuous enema can be given by the double-current method and the temperature kept up. The diuresis eliminates toxins and promotes action of the bowels and skin. The writer has observed a complete absorption of the pleurisy with effusion, due to increased elimination of fluids by the kidneys, where this method is used.

FORENSIC MEDICINE.

Privileged Communications.—

The Paris correspondent of the London *Lancet* of October 13, 1900, says that it is becoming more and more difficult in France to lay down the limits of professional secrecy. The interpretations given by different courts are sometimes contradictory. Hitherto the rule has been that professional secrecy is absolute, and nothing can dispense the medical man from the obligation, not even the permission or death of the patient. The court of appeals of Toulouse has just allowed a remarkable exception to this rule, hitherto so strictly observed. The court gave judgment in a case involving the disposition of some property. One of the witnesses summoned was the medical attendant of the deceased, who was also his personal friend. The counsel of the other side objected to the testimony of this witness as being a violation of professional secrecy. In opposition to this contention the court decided to admit the evidence as good, arguing that it contained two classes of facts, one of which had been obtained by the medical man in the capacity of friend, and which, therefore, had nothing to do with professional secrecy; the other, which concerned the complaint of the deceased, was a matter of public knowledge, for every one in the district knew he had died of heart disease, while the explanation furnished by the medical man with regard to the latter class of facts was necessary to allow him to justify certain matters as to which sundry witnesses had brought charges against him. This judgment provoked some criticism, as it is stated that it would be impossible to draw a dis-

tinction between communications made to the medical man as a personal friend and those made as a medical attendant, they often standing in both relations to their patients. It is also criticized on the ground that because a patient's ailment is universally known, the medical attendant need not observe secrecy. The latter observation of secrecy has even been carried so far as to punish some men for making statements of the ailments of their patients when such matters have become common property by publication in the daily papers.

Comparatively few of the States of the American Union have made communications of physicians privileged. In those States that are still under the common law there ought to be no difficulty in the matter, as the just rule would be that communications made to physicians for the purpose of aiding the medical man in the treatment of the case are clearly what would be privileged. The difficulty with the French law is that it has gone too far; for example, objecting to a medical man revealing what may be of the utmost importance to the man himself to have stated. Thus, one can easily conceive of a case in which a man is charged with having a venereal disease, and his physician is perhaps the only one who could state that the disease from which he suffered was not a venereal affection. Under the French law a man would not be allowed to bring in evidence of this sort, which is certainly absurd. Much the same rule that is applied in the case of lawyers should apply to the medical man. Not every communication made to a medical man should be privileged, but only those which are necessary to aid him in the treatment of a case. Every commonwealth needs a rule of this kind.

Authority to Bind a Principal.—

The question as to who is authorized to employ a physician and to bind the principal for the payment of the physician's services has again been raised, in a Pennsylvania court (*Journal of the American Medical Association*, Nov. 24, 1900). An employee of a corporation was injured while in the line of his employment. He required immediate relief and medical attention. The manager at the place, at the time the highest officer in the employ of the corporation, secured a physician to give such aid to the injured person as the circumstances required. The Appellate Court of Indiana holds that the manager in question had no authority to employ a physician for attendance upon an injured employee, as it did not come within the scope of his duties. The court declared that it cannot hold, as a

matter of law, that such employment would come within the scope of the duties of the coal company. The same court has held that the manager of a railroad or other employee has power to employ physicians and to bind the company for their services. Such a rule, however, as applied to railroad companies, does not extend to private corporations such as that named.

[We have repeatedly called attention in these pages to the frequency with which physicians expect the statement of an employee or even a telephone message to constitute a binding contract between themselves and a corporation, for the care of an injured employee. There is nothing in the law that compels one person, whether a corporation or an individual, to pay for medical services rendered another. The fact that they are often emergency cases, and that the injuries may have been sustained in the line of their employment, does not make it incumbent upon the employer to pay the bill. The legal rule is that a verbal contract to pay the debt of another is not binding, even when made by the principal. Physicians not understanding this rule may go on rendering services over a long period of time, in the full belief that an employer is responsible for the bill. When the services are concluded and the account is finally presented, they find that their understanding is repudiated, or else the employer had a very different idea as to what he was contracting to pay. All such misunderstandings are readily obviated by securing a contract in writing. After immediate attention to a wounded person, then, it is clearly the duty of the physician to visit the employer, explain the circumstances to him, and if he desires the continuance of the services to his employee, that he so express himself in writing.]

Possibility of Homicide by Carbolic Acid.—

A case of some interest is given in the *Journal of the American Medical Association* of October 20, 1900, which has been investigated by the coroner in Toronto, Canada, raising the question of the possibility of homicide by carbolic acid. A citizen was found dead on the arrival of the physician who had been summoned hastily. Although four physicians saw the patient in rapid succession, not one of them detected the odor of carbolic acid in the room or about the body of the deceased. The coroner was notified, and on a post-mortem examination carbolic acid was found to be the cause of death. Suspicion pointed to the man's wife and a young man who was boarding with them, and their arrest followed upon a charge of murder. No bottle was found that had contained carbolic acid, and

it could not be ascertained where the deceased had obtained the drug, or if either of the accused had purchased it. The prosecution endeavored to show that it could be administered for a length of time, or it might be given in some substance which would disguise its peculiar odor and taste. The case, after dragging along for six weeks in the coroner's court, finally reached a preliminary hearing, where it was summarily dismissed and the prisoners liberated.

The case is of interest because it brings up the question of the possibility of the homicidal use of carbolic acid. So far as we are aware, no case is on record where this drug was used for homicidal purposes, and yet we can readily see how it might be employed; its felonious administration must be difficult because of its pungent odor and acrid taste. Unquestionably there may be such a thing as a chronic carbolic acid poisoning, in which death results from the prolonged action of the drug upon the nervous system or its destructive effect upon the kidneys. In the case which we have cited, it is probable that a very considerable dose was administered, as the local effect of the acid seems to have been recognized as soon as the stomach was opened.

Needle in the Heart.—

R. Le Fort, in the *Écho Médical du Nord* of October 28, 1900 (*Journal of the American Medical Association*, Nov. 24, 1900), describes the case of a lad eleven years of age, who in falling drove a needle through the thoracic wall at the fifth intercostal space. A transverse incision one-half centimeter above the point at which the needle entered enabled it to be withdrawn. The length and direction of the needle showed that it had penetrated deeply into the ventricle. There was only transient disturbance of the circulation, the pulse being imperceptible for twenty seconds, and then returning to normal. In a day or two the child was as well as ever. Loison is quoted as having collected twenty-three cases of this kind. The mortality of these cases was found to be 60.8 per cent, and was invariably due to internal hemorrhage when a cause was specified. In three cases the needle was extracted without incision and three times with incision, all recovering. The case reported is the fourth of the latter class. Seventeen new instances of surgical intervention in wounds of the heart have been reported during the last two years. The total number of successful sutures of the heart is now nine out of twenty-four. Of the fatal cases, two survived for a considerable period.

Degeneracy and Mental Responsibility.—

C. W. Hitchcock, in the *American Journal of Insanity* for October, 1900, says that the term "degenerate" is frequently bandied about in courts of law in such a way as to lead many to the belief that any one who suffers from degeneracy or the stigmata of this condition is irresponsible. Often the presence of the stigmata affords good ground upon which to base a prisoner's innocence. A highly arched narrow palate, an ill-shaped ear, an asymmetrical cranial contour, are not yet accepted by society as evidence of irresponsibility, but in the minds of the laity such points may easily attain a dignity out of proportion with their real value.

In the defense of criminal cases facial or cranial asymmetry has proven to be splendid argument for contending counsel. The writer does not deny the value of the recognized signs of degeneracy, and urges that they should be most carefully sought for. He urges the early establishment of some standard which shall fix, approximately at least, the nature of stigmata; the brand-marks, both physical and mental, which may be looked for as indicative of the degenerate type. They have been well described by writers of ability, but no systematic effort seems to have been made to group the essential stigmata or to establish any definite boundary line beyond which begins a distinct and significant departure from the normal.

It is understood that all original communications sent to this journal are for its pages exclusively, excepting in cases where articles are published in the transactions of the Societies before which they are read, or in which an abstract appears. Articles will be illustrated. Authors will be furnished a liberal number of reprints; or, if they so elect, an honorarium will be paid for original communications.

Books for review, exchanges, and all matters relating to the editorial management, should be addressed to Harold N. Moyer, M.D., 103 State St., Chicago, Ill.

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ORIGINAL ARTICLES.

TREATMENT OF TUBERCULOSIS OF THE SPINE.

BY ALEX. C. WIENER, M.D., CHICAGO.

In considering so extensive a subject I shall not aim to be exhaustive, but will give a short sketch from personal experience. Surgery has for its purpose the treatment of conditions which result in mechanical changes of structure, and to this end it employs mechanical means. The use of the knife is based on the same principle as an extension apparatus, the one relieving tension of the tissues by incising the integument, the other without. The attention of surgeons should be especially directed to those unfortunates in whom morbid processes of the osseous system cannot be attacked by the knife, yet will terminate in serious deformity unless relieved by mechanical means. The general surgeon is inclined to refer a case of tuberculous spondylitis to the junior house surgeon of the hospital, who wraps the crippled, aching trunk in a series of plaster-of-Paris bandages which is called a jacket. If funds are available for the purpose, it is ornamented with some leather trimmings and hooks to fasten the laces. Sometimes the instrument-maker is called in to fit the patient with a jacket composed of steel bars and leather, and in some cases a jury mast is added. Too often such cases are neglected in the hospital because their troubles are not amenable to direct surgical intervention by a cutting operation.

Early diagnosis is essential in the treatment of tuberculous spondylitis. Reflex spasm of the muscles of the back overshadows all other symptoms in importance. It indicates local irritation and is the most valuable guide for the diagnostician. This same spasm is the source of local and referred pains; it presses the diseased parts into each other, and thus favors decalcification, which is prone to

occur in all bones affected with the tubercle bacillus. In the efforts of nature to bring into apposition the healthy edges of the vertebræ, it pushes the arches and dorsal processes backward, and the result is deformity.

In the treatment, every effort should be made to counteract this muscular reflex spasm in the most effectual manner. Reliance should not be placed upon immobilization with the conventional plaster-of-Paris jacket. Permanent extension can always be depended upon whether combined with immobilization of the spine or not. Immobilization is spoken of in the highest terms in the text-books and is facilitated by Phelps's ingenious device, the portable plaster-of-Paris bed, which easily takes a second place in relieving pain and paralysis.

Extension weight of one pound, gradually increased to ten pounds, applied to the head, with the bed inclined at forty-five degrees so that the body may act as a counter-extension, has lately relieved a boy of four years of age, affected with a gibbosity at the seventh dorsal vertebra and with a total paralysis of the lower extremities. He is now able, after nine weeks' treatment, to walk without support. Plaster-of-Paris jackets, carefully applied, had previously reduced the boy's general condition to where his life was despaired of.

It would be against the hygienic principles now generally accepted for all tuberculous patients to keep them in bed for a long time. This is not necessary, as the reflex spasm soon yields to extension, and the patient can then be out-of-doors protected by an extension apparatus, and the weight can be used at night. A little weight relieves pain and favors sleep. Fresh air, plenty of food, and cheerful surroundings are, as a matter of course, essential in the treatment of these cases. The treatment required for them is rarely to be obtained in our public hospitals.

The two grave complications of tuberculous spondylitis are paralysis and gravitation abscess. Without prompt treatment the local tuberculous osteitis spreads to the membranes of the cord. A disturbance of circulation follows, consisting of an endarteritis and a lymphatic stasis, which causes an edema of the cord at the seat of the disease. Paralysis, both sensory and motor, as well as of the bladder and rectum, is attributed to the infection of the dura mater. Laminectomy only affords passing relief to the sufferer, as it is not the pressure of the sunken vertebræ which affects the functions of the cord. If liberated from compressing granulations, its function returns, but the disease is not cured; the condition recurs with the

added danger of a mixed infection. Laminectomy is indicated in cases where there is a mixed infection, and in those rare cases where a gibbosity has developed suddenly and is immediately followed by paralytic symptoms. In such cases the cord is compressed by a large sequestrum, which irreparably injures the cord and justifies immediate and heroic measures.

The forcible correction of the spine in tuberculous deformities, advocated by Calot, is not to be recommended, but we should give him credit for his daring work. Calot has initiated a more active therapy in this disease. Slight daily extension combined with careful manual pressure will accomplish the same results without danger. It is not the aim in such methods to directly correct the deformity, but to improve the arterial and lymphatic circulation, exciting in the infected region a mild formative irritation to aid the process of repair. Such a treatment should be carried on gently so as not to cause the child much anxiety, for it is most important that the patient should be kept in a cheerful and hopeful state of mind. The manual treatment is to be perpetuated by judiciously applied elastic bands. I have succeeded in overcoming small gibbosities in two young women, one of 18 and one of 25. The older patient had lost the use of her limbs before the apparatus was finished.

Of the permanent results of forcible correction of the spine I am skeptical, notwithstanding the favorable reports in medical literature. Shortly after Calot presented his work to the International Medical Congress at Moscow, it was my good fortune to see a case of tuberculosis of the spine and to be afforded an opportunity of studying the mechanical changes brought about by the application of the new method. I saw this case through the courtesy of Dr. Josephine Jackson, then interne in the Cook County Hospital, to whom I am indebted for the following clinical history:

"John Smith, aged four years, was admitted to the Cook County Hospital in the spring of 1896, his complaint being that he had 'lost his walk while falling off his bicycle.' No definite history was obtained, as the child was an orphan and had no friends.

"Examination showed a fair degree of general nourishment and a pale, clear skin. The face was of more than average intelligence. The shoulders were raised and the head lay between them with the chin elevated. When sitting, the lower extremities were doubled under the body, and the trunk was supported by resting on the palm of one or of both hands. There was a marked prominence in the mid-dorsal region, with a compensatory lordosis. There was a right

lateral curvature of slight degree. The thoracic walls spread outward at the lower portion, and the abdomen was prominent. In the recumbent position there was spastic rigidity of the lower extremities with complete extension, and exaggerated adduction. Passive motion, attempting flexion or abduction, met with great resistance, and yielded each time with the characteristic jerk. This motion did not cause pain. The muscles showed the atrophy of disease. Both superficial and deep reflexes were exaggerated, and ankle clonus was easily elicited.

"Examination of the trunk by palpation, percussion, and auscultation revealed no pathologic condition of thoracic or abdominal viscera. The child ate and slept well, and was free from pain. There was persistent incontinence of urine and feces, which was partly overcome by prolonged careful training, but the vesical reflex was always imperative, yielding only temporarily to cerebral inhibition.

"In June, 1897, systematic treatment was begun, consisting of salt baths, massage, and passive motion of the lower extremities. July 11, an extension apparatus was applied, supporting the weight of the head and shoulders, so that the child could sit erect without pain with both arms free. So much comfort was gained from the support that the child was unwilling to leave it off after the first day. The spastic condition of the lower extremities lessened, more especially in the right leg, and the child soon learned to slip out of bed and support his weight on his feet. A little later he succeeded in taking a step with the right foot, but the rigidity of the left could not be overcome.

"During the latter part of August urination became painful, and urine of acid reaction was found to contain abundance of pus. The temperature rose to 104.3° F., pulse 120, respirations 36; appetite was lost; a state of semistupor came on, and the child died September 17, having suffered little pain, and without any change in the physical findings.

"Autopsy revealed a caseous mass replacing the body of the sixth dorsal vertebra. This mass was covered by fibrous tissue, which was easily ruptured. A few sequestra were embedded in the mass. Removing the caseous material, the dura mater was exposed, but presented no gross changes. There were no evidences of pressure on the cord. Extending from this diseased vertebra, outward and downward to the diaphragm, and lying on the posterior wall of the pleural cavity, was a similar caseous mass, not involving the ribs. The portion of lung lying directly over this tuberculous focus

showed pneumonic inflammation in the stage of red hepatization. There were no tubercles in the lung. An adhesive pleuritis, recent, and with easily separable adhesions, obliterated the left pleural cavity. The left kidney showed several tubercles in the cortex, and a caseous focus at the lower pole, while pus in abundance was expressed from some of the calices. The pelvis was not distended. There were no tubercles in other organs, and the mesenteric glands were only moderately enlarged."

What is to be hoped from the treatment of such a case by Calot's method? Where was the bone to come from which is to fill the gap left by the destruction of the sixth vertebra? With the periosteum mostly gone and the vertebral epiphyses destroyed, we cannot conceive of the formation of those bridges of bone which, as Calot asserts, connect the severed vertebræ. In the year after Calot's publication much was written upon the subject. Now that the time has arrived when final results ought to be known in cases operated on two years ago, a cautious reserve is shown.

Forcible correction is indicated in cases in which the deformity is of recent date. In these the operation is easy and is accompanied by little danger. Where paralysis does not yield to milder measures, it may be undertaken as a last resort, though the risk to life is very great. Péan describes the case of a girl 15 years old with an enormous kyphosis of the upper part of the spine, complicated with paralysis of the lower extremities. She had been treated by stretching for two years without benefit, when forcible correction and immobilization in a plaster-of-Paris jacket was followed by a prompt improvement in the paralysis.

The gravitation abscess is both frequent and difficult to treat. There is a temptation to open these abscesses at the most prominent part and empty the pus, but this does not reach the seat of the difficulty; it only encumbers the patients with permanently oozing fistulæ, which are usually accompanied by mixed infection and amyloid degeneration, followed by the death of the patient. Such abscesses are rarely accompanied by fever, 101° F. being the highest recorded. The ordinary symptoms of sepsis are not present, and under favorable circumstances absorption may take place. I have observed in the right iliac fossa in a man 45 years of age a tuberculous abscess the size of a child's head, which disappeared without leaving a trace. In this case there was a destruction of the first lumbar vertebra, and the only treatment employed was a permanent extension apparatus.

Lately I have used, in a large psoas abscess reaching down to

the middle of the left femur, which originated in a tuberculous spondylitis of the first and second lumbar vertebræ, a large trocar to empty the pus. The man, 34 years of age, was attacked seventeen years ago with tuberculous spondylitis, which left quite a kyphosis of the lumbar spine. For seventeen years he did not experience any inconvenience, when without apparent cause the tuberculous process revived, resulting in a large psoas abscess which bulged forward at Scarpa's triangle. Just behind and below the left great trochanter was found a small swelling the size of a silver dollar. This spot was chosen for three preliminary injections of carbolic acid, six drops each time five and seven days apart. Carbolic acid seems to have powerful chemotactic qualities, since it allured, so to speak, the pus to the outer side of the femur. One pint of thick pus intermixed with chunks of fibrinous coaguli and fine osseous débris was emptied the first time. Then fifteen drops of 95-per-cent solution of carbolic acid was slowly injected into the abscess cavity. The operation was repeated six times at intervals of one to three weeks. The last injection was made three months after the first one, when the fluid had changed into a clear yellow serum. At no time was there any harm experienced, either local or systemic, and the injections seemed to cause no pain or inconvenience.

In conclusion, I wish to urge upon each member of the medical profession to direct his efforts to the end that proper care be taken of the unfortunates afflicted with surgical tuberculosis, in hospitals adapted for the purpose.

100 STATE STREET.

ADDISON'S DISEASE.

BY CHARLES G. WILLSON, M.D.,
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In the latter part of October, 1899, a young woman, aged 24 years, was admitted to one of our hospitals. The history of the case was that four days previous to her admission she was seized suddenly with a severe attack of vomiting and diarrhea, which continued during that day and the next. The stomach continued somewhat irritable thereafter.

Upon admission to the hospital her temperature was 97° F.; the pulse was rapid and feeble. No other objective or subjective symptoms could be elicited, and she was given cardiac tonics and stimulants and surrounded with hot-water bottles. It was observed that her skin was rather dark, but this, the patient declared, was her normal color. Treatment was of no avail, the patient's condition steadily going from bad to worse until death closed the scene, about forty hours after admission to the hospital.

This young woman came to Milwaukee from Germany in April, 1899. There is no history of any previous disease, except that soon after coming to this city she had an apparently causeless attack of vomiting and diarrhea lasting two or three days. The most careful inquiry among the acquaintances of the patient failed to reveal any history of previous complaints, or change in the color of her skin. Her mother stated positively that there had been no change in her color since childhood, and a brother's wife corroborated this statement.

No diagnosis having been made during life, an autopsy was held, and the fact revealed that the patient was the victim of Addison's disease. The body was well nourished; *rigor mortis* not marked. A few slight adhesions were found between the liver and adjacent viscera; also about the spleen. Heart normal in color, rather small, valves normal. Lungs, stomach, liver, and intestines all normal. Spleen slightly enlarged, its capsule showing several small areas of thickening. Kidneys normal in size and appearance, capsules non-adherent. Brain and meninges normal. Uterus slightly enlarged and apparently in condition of commencing menstruation. Ovaries normal.

Both suprarenal bodies were enlarged, hard, and quite irregular in outline, the left being larger, in proportion, than the right. On section, their capsules were found to be very much thickened and

the gland structure entirely replaced by large, cheesy masses, with here and there small softened points and particles of calcareous matter (Figs. 1 and 2). Two or three enlarged, cheesy lymphatic glands were found near left adrenal. Tubercle bacilli were demonstrated in the caseous suprarenals (Fig. 3).

The semilunar plexus and adjacent sympathetic nerves were found enveloped in dense meshes of fibroid tissue. The suprarenal and solar plexuses were so matted together and fused by this dense, enveloping, fibrous overgrowth as not only to render the dissection extremely difficult, but to make the differentiation of nerve matter and fibrous tissue almost an impossibility. Microscopically there was observed considerable cellular infiltration between the fibers of the underlying muscle (Fig. 4, *a*).

Addison's disease, or bronze skin disease, was first distinctly described by Addison in 1855. The first cases in America were reported by Taylor and Ranking in the following year.

Addison gave as the leading and characteristic features of the disease: anemia, general languor and debility, remarkable feebleness of the heart's action, irritability of the stomach, and a peculiar change in the color of the skin, occurring in connection with a diseased condition of the suprarenal bodies.

Any one of the so-called tripod of symptoms, to-wit, progressive anemia, pigmentation, and degeneration of the suprarenals, may be present or absent in certain cases.

As a rule, the development of symptoms in Addison's disease is gradual, the patient usually, at first, complaining of languor and an increasing indisposition to exertion. The order of symptomatic development, however, is not uniform. Anorexia with nausea and vomiting may be an early symptom, and these, with occasional remissions and exacerbations, may constitute the chief symptoms of the disease.

Pigmentation of the skin has been known to precede all other symptoms for as long a period as from eight to sixteen months. On the other hand, asthenia, which is perhaps the most constant symptom in the majority of cases, together with circulatory disturbances and dyspnea, may for a long time be the most marked symptoms; pigmentation occurring late, or not at all. It is rare, however, for the disease to exist more than a year without the appearance of some pigmentation.

Asthenia is said to be the key-note of the malady. There is a progressive loss of muscular power, the patient becoming easily fatigued, until finally there is total inability for sustained effort.

FIG. 1.—Left suprarenal body. Natural size.

FIG. 2.—Right suprarenal body.

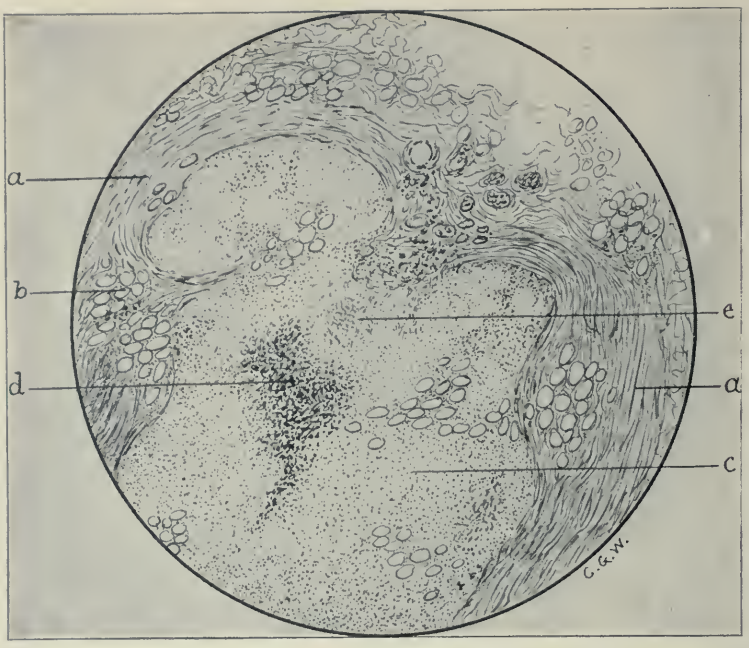

FIG. 3.—Tubercle bacilli in degenerated adrenal. *a*, *a*, Fibrous capsule; *b*, fat cells; *c*, caseous mass; *d*, calcareous matter; *e*, tubercle bacilli.

FIG. 4.—Semilunar ganglion and underlying muscle. *a*, Cellular infiltration; *b*, muscle fibers; *c*, fibrous tissue; *d*, nerve; *e*, ganglion.

The heart's action is weak, the pulse small, and easily compressible. As a result of the loss of cardiac and vascular tone, the brain receives a deficient supply of blood, and in the later stages of the disease there is a tendency to, or actual, syncope on the patient suddenly sitting up in bed.

The temperature, in uncomplicated cases, is subnormal throughout the disease.

A notable fact in Addison's disease is the absence of wasting, in respect to both muscle and fat, in the majority of cases. When emaciation does occur, it is usually in connection with marked gastrointestinal symptoms.

The bowels are usually constipated, but from time to time there may be more or less severe diarrhea. Pain in the lumbar region and in the knees is often present and may occasion great suffering. The course of the malady is slowly and progressively toward a fatal termination, the average duration being about eighteen months. Cases varying in duration from a few weeks to six and ten years have been reported. Attention has been called to the fact that non-pigmented cases are of shorter duration than pigmented. The mind, as a rule, remains clear to the end, although the memory is frequently impaired.

The typical pigmentation, when present, is of a greenish-brown tint, but may vary from a light yellow, or greenish-yellow, to a very dark brown. The pigment is deposited in the deep layers of the rete, as normally in the dark races, in the form of yellow or yellowish-brown granules, so that there is nothing specially noteworthy about its anatomical position. Although sometimes diffused, the tint is never quite uniform over the entire body, being usually most pronounced on those surfaces which are exposed, as the face, neck, and backs of the hands, besides those parts which are naturally most pigmented, viz., the nipples and areolæ, the axillæ and groins, and especially the genitals; the penis and scrotum being very commonly deeply pigmented. Points subjected to pressure or friction from the clothing, as from bands about the neck and waist, garters, suspenders, etc., all tend to attract pigment to the parts affected. However, it is a remarkable fact that the palms of the hands and soles of the feet, which are subjected to the most pressure, are not pigmented. The mucous membranes of the mouth and vagina undergo a like discoloration to that of the skin, the pigmented areas being of a bluish-gray color. It is said that pigmentation of the buccal mucous membrane is due to irritation or pressure from the teeth. Pigmentation of the skin and mucous membranes is not a constant, nor can it

be considered an essential, symptom of Addison's disease. Greenhow reported twenty-nine non-pigmented cases in a series of two hundred and twenty-eight.

As the discoloration usually begins on the exposed parts of the body, and afterward extends to those parts which are normally more or less pigmented, it may be regarded as an exaggeration of a physiological process.

There are but three reasonable hypotheses to account for the symptoms of Addison's disease, namely: (1) That they are due to suprarenal inadequacy; (2) that they are due to sympathetic irritation, either functional or organic; or (3) that they are due to both. The latter hypothesis seems to be supported by much weightier evidence than either of the others.

In support of the theory of sympathetic irritation Jonas reports a case of disease of one suprarenal, accompanied by typical Addisonian symptoms, including pigmentation, upon which he operated for the removal of the diseased organ, with the result that there was complete and rapid recovery with disappearance of all symptoms. He concludes as follows: "We must consider that the organs in state of disease, located so near the sympathetic and in such close connection, can, by long-continued irritation of connecting nerve branches, produce such nutritive and nervous change as we have observed in Addison's disease. Our case strengthens this theory. As soon as the pathologic gland, the source of irritation, was removed, recovery ensued."

According to the best of authorities it would seem that, developmentally, the medullary part of the suprarenal, which has recently come to be regarded as the important part of the organ, is derived in some way from the sympathetic nervous system, and that the cortical portion is derived from the germ epithelium. Vincent claims that "whatever their origin, they are both 'glandular,' and that we must look upon the mammalian suprarenal capsule as a double glandular organ, developmentally related to the reproductive and nervous systems." It is a noteworthy fact that in birds and reptiles the suprarenal body is in anatomical relationship to the reproductive organs and not to the kidneys. Hughes calls attention to the fact that in the mammalian in the normal condition the suprarenal bodies receive branches from the renal arteries, and that it is not unusual to find one of the spermatic arteries arising from the same source; and again, that on the left side the renal vein normally receives the suprarenal and spermatic or ovarian veins. He reports a case in exemplification of the close developmental connection of the supra-

renals, kidney, and testis, in which an originally close plexus of vessels became converted into a wide-meshed one by the subsequent descent of the testis.

The suprarenal capsules contain a constituent which acts powerfully upon the muscular layer of the arteries, the heart muscle, and the general muscular system. As a result of its stimulating effect upon the heart and the contraction of the walls of the arteries, the blood-pressure is greatly increased. This active principle is contained only in the medulla of the gland.

The sexual glands also contain a substance which has a similar effect upon the blood-pressure. Federoff injected extracts of the ovaries into the blood of rabbits with the view of noting their influence upon the blood-pressure, with the following results:

1. Ovarin and fresh ovarian extract raise the blood-pressure, but diminish the heart's action and slow the respiration.

2. In the human female the pressure in the radial artery is notably increased after the administration of ovarin.

3. Poehl's ovarin has a marked beneficial effect in the disturbances attending the climacteric, as well as in functional disturbances of the ovaries.

It is a significant fact that the adrenals, like the sexual glands, atrophy in age. In old age the weakening of the myocardium renders low blood-pressure rather than high blood-pressure desirable; moreover, with advancing years the walls of the blood-vessels are weakened and friable — another reason why low blood-pressure rather than high blood-pressure is desirable. When we now take into consideration the fact that suprarenal extract as well as the extract of the sexual glands causes heightened blood-pressure, we shall see an added reason why these glands undergo atrophy in age.

Clinical evidence points strongly to the fact that the sympathetic nervous system is the underlying factor in pigmentation of the skin, and the fact has been confirmed by numerous observers that pigmentation occurs as a most marked symptom in those cases of Addison's disease in which the sympathetic nerves are the seat of morbid change.

Although pigmentation may occur in various other conditions and diseases, its occurrence in pregnancy, chronic uterine disease, and functional ovarian disturbances is so frequently accompanied by other symptoms which are characteristic of Addison's disease as to strengthen the theory that Addison's disease is dependent upon lesion or irritation of the abdominal sympathetic nervous system; and further, to point to the possibility, if not probability, that the

sexual glands have a function in the human economy similar to that of the suprarenal bodies.

It is well known that the testes and ovaries produce a profound effect in the economy, their removal or degeneration producing alterations in the general nutrition, and even in the main characteristics of the organism; but whether this is due to trophic influence of the sexual glands, through the nervous system, or to the chemical stimulus of an internal secretion, has not been determined with certainty.

In women, besides the cessation of menstruation, the results of castration generally consist of various vasomotor disturbances, such as flashes of heat over the body, a feeling of a rush of blood, and acute outbreaks of perspiration.

It is also a notable fact that pregnant women very seldom escape digestive disturbances altogether, nausea and vomiting being a very common symptom. The appetite is usually capricious. The bowels are usually constipated, though sometimes there may be diarrhea. Pigmentation of the nipples and areolæ is almost a constant symptom; while at times the forehead, eyelids, root of the nose, and the upper lip are covered with dirty-brown, pigmented areas, which as a rule disappear shortly after confinement. Pigmentation is often observed about the pudenda and on the abdomen, especially along the linea alba. Pregnant women are also subject to attacks of syncope; the nervous system is more impressionable, and the memory is often weakened.

A stumbling-block in the study of the pathogenesis of Addison's disease is the fact that partial or complete destruction of both suprarenal capsules, or extreme atrophy of these organs, may occur without any of the characteristic symptoms. These cases have been ingeniously accounted for as being due possibly to errors in diagnosis, or to the compensatory hypertrophy of accessory adrenals.

On the other hand, cases of Addison's disease have occurred without apparent disease of the suprarenal capsules. Perhaps, as suggested by Hektoen, a more careful study of the adrenals may reveal chemic and histologic changes hitherto not observed.

As is the case with the ovaries, it is probable that often there are changes in the suprarenals, clinically unrecognizable, which may give rise to severe and protracted morbid symptoms; and again, that frequently in aberrant cases of Addison's disease the ovaries or testes perform the function of accessory adrenals.

EXTRA-GASTRIC HEMATEMESIS—A CLINICAL LECTURE.

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A consideration of every form of hematemesis is beyond the scope of this lecture, so we shall limit our discussion to certain phases of this condition in which the fundamental cause is extra-gastric.

Henoch's Form of Purpura Hemorrhagica.—Charles W——, 3½ years old, was before the class in November, 1899. Illness began six months ago with severe paroxysms of colic accompanied by violent attacks of vomiting, diarrhea, and rectal tenesmus. Vomitus and stools contained large quantities of blood. General muscular soreness and ecchymotic spots over both legs; fever and chilly sensations. Attack lasted several days, followed by intense prostration and weakness persisting for several weeks. His mother described three distinct attacks of a similar character.

The hereditary history was perfect. No family tendency to bleeding, either following injury or spontaneously. The child had been born at term; labor was normal in all respects, and during the first nine months he was breast-fed, after which he received a generous diet properly adjusted to his age. Up to the time of this illness he escaped the usual infantile disorders. Walking, talking, dentition, and the closure of the fontanels occurred at the proper time.

On examination of the child, he was restless; pressure over the muscles elicited signs of pain, particularly of the leg muscles. The skin was pale, with purpuric spots over both legs and arms, varying in size from a pin-head to large blotches. The osseous, glandular, and cutaneous systems, other than the ecchymoses, appeared normal. The mucous membranes of the nose, eyes, mouth, and gums were somewhat paler than normal, with the exception of the hemorrhagic spots. There was no stomatitis, urticaria, erythema nodosum, or arthritic symptoms. The tongue was dry and coated; temperature 103°; pulse 130. The heart and lungs were negative. The abdomen was somewhat distended and sensitive to pressure. The liver was not enlarged. Splenic dulness extended somewhat beyond the free border of the ribs.

The mother was advised to take the child home, keep it in bed in a warm, well ventilated, and well lighted room, giving it tepid sponge baths, with iced milk for nourishment, and a powder of tannigen, salol, and fractional doses of calomel; also high rectal flushings with ice water. Two weeks later the child presented a much

better apperance, the hematemesis and melena having ceased. Temperature and pulse were normal. Examination of the blood showed a diminution in the number of red blood-corpuscles and a proportionate reduction in the hemoglobin. There was no distortion either in the size or shape of the red blood cells; also no increase in the number of leucocytes. The urine was normal. The stools contained no intestinal parasites.

Pernicious anemia, splenic anemia, rickets, scorbutus, hemophilia, malaria, intestinal parasites, and the ordinary types of purpura hemorrhagica were excluded along the lines indicated. The further treatment of the case was hygienic and dietetic by the use of liquor kali arsenitis and syrup of iodide of iron, with syrup of wheat phosphates. Nine months after the last attack the child was improved in strength, and there has been no recurrence.

The citation of the next three cases, in which the diagnosis was confirmed by autopsy at the Michael Reese Hospital, still further demonstrates how diverse pathologic states may have hematemesis as a pronounced symptom.

Mitral Stenosis and Insufficiency.—Michael S——, 15 years old, had been under my immediate supervision prior to his appearance at the clinic in October, 1899, complaining of symptoms similar to those for which he now sought relief. He had giddy spells, palpitation, breathlessness, with occasional coughing and vomiting of blood, and some swelling of the feet. Both his parents are in good health, as are his brothers and sisters. He suffered from scarlet fever six years before, but without joint complications. There was no history of chorea or rheumatism either in its arthritic or aberrant forms. Other than the several attacks of hematemesis, he had no perversion of the functions of the digestive tract.

On examination the lad was found to be somewhat undersized for his years. The skin, particularly of the nose and face, was dusky and slightly icteric. The extremities were swollen and pitted on pressure. The fingers were not clubbed, nor was there any trophic change of the nails. There was a subicteric hue of the sclera, and puffiness of the lower lids. The tongue was furred. The shape of the thorax was negative, excepting very slight bulging in the precordial region. The veins of the neck were turgescent, with a presystolic or negative venous pulse. The radial pulses were equal, rather empty, and of diminished tension, somewhat frequent and arrhythmical. The elasticity was about normal. There were numerous moist and mucous râles throughout the chest. The respirations were shallow and rapid. On inspection of the precordia,

some prominence was noted. The apex beat was about one and one-half inches outside the mammillary line. Epigastric pulsation was pronounced. On palpation, the impulse was felt to be diffused and of lessened intensity; it was preceded by a distinct thrill, *fremissment catairre*. Vibrations induced by the active closure of the second pulmonic could also be felt. Cardiac dulness began at the second intercostal space, extending to the right as far as the right parasternal line, and one and a half inches beyond the left mammillary line. Auscultation at the apex revealed a harsh murmur, beginning with the second and terminating in the first sound, which was present and markedly accentuated. (In this connection I desire to emphasize the importance of recognizing the accentuated first sound when present with systolic murmur, as it should attract suspicion to a coexisting obstruction; as in an uncomplicated incompetence of the mitral valve the first sound is either absent or diminished.) The systolic murmur was transmitted toward the left as far as the angle of the scapula. Over the pulmonary area the second sound was strongly accentuated. The aortic and tricuspid sounds were normal. On several occasions, when compensation was markedly disturbed, a systolic murmur was heard over the tricuspid area and the pulsations of the jugulars became systolic in time. Liver pulsations could also be determined. This was unquestionably a transitory condition of relative tricuspid insufficiency. The liver extended two inches below the costal margin in the mammillary line. No other abdominal findings were obtained.

The lad was taken to the Michael Reese Hospital, where rest and rigid diet were enforced. He was given calomel at night, with concentrated solution of sulphate of magnesia in the morning; tincture of nux vomica, tincture of digitalis, and tincture of strophanthus were given alone and in combination. On several occasions his cyanosis became so marked, and an impending edema of the lungs so threatening, that venesection was practiced. At such times carbonate of ammonium also seemed to be of service. For the palpitation, dyspnea, and restlessness, ice over the heart and heat to the extremities, spiritus etheris compositus, leeches applied to the chest, heroin and morphine in appropriate doses, were given, greatly to the child's comfort. Despite these and other measures he died on the 9th day of November. As before stated, the autopsy confirmed the clinical findings. The orifice of the mitral valve was of buttonhole shape, and too small to admit even the point of an ordinary sized lead-pencil.

Hypertrophic Cirrhosis of the Liver.—Joseph B——, 42 years of

age, of Hungarian nativity; barber by trade; married; wife and two children living and well. No history of wife having had miscarriages. Both his parents are well, at the ages of 79 and 75. He denied a venereal history, as well as the immoderate use of tobacco, tea, and coffee, but admitted excessive indulgence in the use of beer and spirits during the past ten years. His present illness began a year ago with dyspeptic symptoms, fulness in the abdomen, morning vomiting of sour fluid, occasional vomiting of blood, which seemed to be provoked spontaneously without relation to the ingestion of food, and unaccompanied by pain or nausea. A few months after icterus gradually developed, beginning in the face and conjunctivæ, and finally involving the entire body. There was a feeling of discomfort rather than pain in the right hypochondrium, described as a dragging sensation. Stools regular and not clay-colored. No history of biliary colic. He claimed to have lost twenty pounds in the past year.

Physical examination showed him to be poorly nourished, emaciated, and profoundly icteric. The icterus involved the sclera and mucous membranes. The musculature was flabby; subcutaneous fat and tissue atrophic; skin elastic and saffron colored. Radial and temporal arteries tortuous and rigid, with a pulse-rate of 50 to the minute. Tongue coated with yellowish fur, and tremulous, as were the hands. Lungs negative. There was an accentuation of the second aortic and a slight displacement of the apex beat to the left; otherwise the heart sounds were clear. Abdomen large, with a marked prominence in the right hypochondrium. No evidences of venous stagnation. Area of liver dulness began at the sixth rib and extended a hand's breadth below the costal margin in the mammillary and parasternal lines. Liver smooth and firm. No pain on pressure; no thrill or acoustic phenomena could be elicited. Spleen was palpable on deep respiration. Urine showed bile pigment and urobilin. Blood examination showed neither malarial parasites nor leucocytosis. Temperature was normal.

Differential diagnosis: (1) In the hypertrophic stage of atrophic cirrhosis there is less jaundice, alcoholic stools, more signs of venous stasis, liver less hypertrophied and more irregular in outline. (2) In syphilis the history of glandular, osseous, cutaneous, ocular, and mucous membrane changes are noted, and the liver is nodular. (3) In amyloid liver there is no jaundice and usually a history of tuberculosis, cachexia, Bright's disease, chronic diarrhea, or suppuration. (4) In cancer there is greater cachexia, no splenic enlargement, glandular involvement, irregular surface of the liver, greater

pain. (5) In echinococcus of the liver there is a thrill, and fluctuation is found in one lobe. (6) Malarial and leukemic enlargements are excluded by examination of the blood and the history.

The jaundice increasing, he was removed to the Michael Reese Hospital, where a febrile movement began (103° F.); the pulse became rapid and weak; heart sounds indistinct; albumin and granular and hyaline casts appeared in the urine. Urea diminished in amount; there were no leucin or tyrosin crystals. His uremic condition enhanced the gravity of his cholemia, delirium with convulsive seizures set in, and he died on the 29th of January. The autopsy, which was performed by Dr. D. N. Eisendrath, confirmed the clinical findings.

Carcinoma of the Esophagus, with Mediastinal Glandular Involvement.—Alexander F——, 44 years of age, a cabinetmaker, of German nationality; married, with three children living and well. Family history negative. Denied venereal infection; also overindulgence in tea, coffee, and alcohol. He had erysipelas five years ago, complicated by pneumonia, but after that he enjoyed excellent health up to July of this year (1900), when his malady began insidiously, without apparent cause. There was difficulty in deglutition, which was especially noticeable on partaking of solid food. After a few weeks he began to vomit immediately after the ingestion of food, the ejected matter consisting of foodstuffs occasionally tinged with blood. During October he acquired dyspnea, a harsh and stridulous cough with considerable huskiness of voice, and finally was unable to articulate above a whisper. He now began to experience pain of a smothering character in the middle of the chest, which persisted irrespective of posture. Occasional sharp pangs of pain, beginning over the sternum and radiating down the arm, added greatly to his discomfort. Since the inception of his illness he had lost twenty pounds in weight.

A definite diagnosis in this case was out of the question. The symptoms, dysphagia, emesis, and pain, are found in locomotor ataxia, in spasmodic stricture of the esophagus, in aneurism, and in stenosis of the esophagus from whatever cause. The uncertainties in these cases emphasize the necessity of an exhaustive individual study of each patient.

Physical examination showed the general nutrition greatly impaired, muscles flabby, and the subcutaneous tissues wasted. The skin was pallid and wrinkled and mucous membranes pale. The osseous system showed no changes. The inguinal, cubital, and axillary glands were not palpable, but in the left supraclavicular

fossa were two indurated glands about the size of small marbles. The right pulse was smaller than the left, and somewhat retarded in time in both the radials and carotids. The right pupil was larger than the left, but both responded to light and accommodation. The patient was unable to answer questions above a whisper. There was no bulging, edema, redness, or dilated veins over the thorax. The heart sounds were distinct. There was no murmur, the second aortic sound was not accented, no diastolic heart shock, no thrill or expansile pulsation, no displacement of the apex beat, no tracheal tugging. Both inspiration and expiration were accompanied by sibilant and sonorous râles and small-sized moist mucous râles. On percussion, a slight area of dulness was detected to the left of the sternum in the third intercostal space, extending over an area as large as a silver dollar. The liver, spleen, and urine were negative. The sputa contained no tubercle bacilli. The blood showed signs of anemia, with a slight increase in the number of leucocytes of a polynuclear and neutrophilic type. The red cells numbered 3,800,000; hemoglobin, 65 per cent; white cells, 21,000.

Laryngoscopic examination showed the glottis in cadaveric position. There was no abnormality of the nervous apparatus. The stethoscope placed to the left of the vertebral column showed normal deglutition sounds as far as the third dorsal. Aneurism having been excluded, it was deemed safe to cautiously introduce an esophageal bougie; at twenty-four centimeters from the incisor teeth an obstruction was encountered which did not convey the gristly feel that is usually obtained with cicatricial contraction, and through which the bougie could not be passed. The man was then exposed to the *x*-ray. After swallowing thirty grains of subnitrate of bismuth, at the point where the dulness had been made out through percussion a corresponding opacity was observed. From this array of symptoms a diagnosis of carcinoma of the esophagus with secondary involvement of the mediastinal glands was made. He was received into the Michael Reese Hospital February 17. His weakness progressively increased, and deglutition was so painful that it necessitated the use of a solution of cocaine each time before he could swallow anything. He was given potassium iodide in increasing doses, and for a short time the severity of the symptoms seemed to abate. The patient refusing surgical intervention, it finally became necessary to resort to rectal alimentation. On March 13 signs of aspiration pneumonia developed, and he died March 17. The post-mortem examination, made by Dr. E. Friend, was corroborative of the clinical findings.

CARCINOMA OF THE THYROID GLAND.*

BY A. E. HALSTEAD, M.D., CHICAGO,
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The study of primary carcinoma of the thyroid gland dates from comparatively recent times. Cooper in 1819 wrote that "malignant disease of the thyroid never occurs," and cited many authorities to support his position. Among the first to recognize the disease clinically and to accurately describe the post-mortem findings was Poumet,[1] who records a case in which death occurred from rupture of the left common carotid, the disease having caused erosion of this vessel as well as perforation of the trachea and thrombosis of the internal jugular vein. The paucity of the early literature on this subject can be appreciated when we consider that Lebert in 1862 could find only twenty-three cases recorded, of which three were probably secondary growths. In 1879, Kaufmann[2] reported twenty-three cases, of which twelve had been collected from the literature and eleven personally observed. The same year Edmund Rose[3] carefully reviewed the works of the previous writers and published twelve new cases. From time to time since the publication of these papers cases have been reported, mostly from autopsies, only a few from surgical clinics. Among those who have reported cases and added to the literature of this subject may be mentioned von Eiselsberge,[4] Cramer,[5] Hinterstoisser,[6] Bruns,[7] and Wolfer.[8] The latest contribution has been made by Poncet,[9] who in 1899 reported fifty cases, most of them collected from recent publications and not included in the papers of the authors previously mentioned.

The frequency of primary carcinoma of the thyroid varies greatly in different localities. Lucke[10] personally observed ten cases in two years in Berne, and states that in all goitrous districts malignant disease of the gland is of frequent occurrence. Thus Limacher,[11] of Berne, in 7641 sections found carcinoma thirty-eight times, while Chiari[12] in Prag records only eleven in 7700 post-mortems. Winniwater, from the post-mortem records of several German universities, found in 548 carcinomata the thyroid to be the seat of the primary tumor in .73 per cent of the cases. Williams[13] in a recent publication gives statistics from the records of a number of British hospitals, and finds that in 7294 carcinomata the thyroid

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was primarily involved in only seven instances. In this country no statistics as to the frequency of the disease are available, but it would appear to be more common than it is in England.

Concerning the etiology of thyroid carcinoma very little need be said. It is well known that the disease appears mostly in thyroids that have been the seat of benign struma. Pregnancy is considered by Kaufmann to be a predisposing cause. It unquestionably influences the development of ordinary goitre and determines an increased vascularity of the gland. In this way it indirectly acts as a cause of carcinoma. That it is of slight importance from an etiologic standpoint is evidenced by Kaufmann's own cases, in which the disease occurred seventeen times in the male and eleven in the female. Age seems to have but little influence in the development of the disease. In Kaufmann's collection of twenty cases, in which the age was noted, the growth appeared oftenest between the 40th and 50th years (in seven cases), and next in frequency between the 30th and 40th years. That it may occur at any time is shown by the case reported by Demme,[14] where a carcinoma was found in the thyroid of an infant, and in that of Schuh,[15] where the patient was a girl of 16 years. In one of Kaufmann's cases the disease began after the patient had reached the 75th year. Trauma was considered by Cornil[16] to be an etiologic factor of some importance. The same opinion was expressed by Cramer,[5] who reports two personal observations where carcinoma developed immediately after the patients had sustained an injury to the thyroid gland. In these cases it also appears that the metastatic tumors, one in the inferior maxilla and the other in the sternum and cervical vertebra, began to grow immediately after these parts were subjected to trauma. Von Eiselsberge[4] records a case seemingly following close upon injury to the gland.

It is well known that trauma influences the development of benign struma, and that in quite a number of cases it appears that malignant growths owe their origin to injury of the tissues from which they spring; but it does not appear that trauma should be considered of more importance in the etiology of carcinoma of the thyroid than in causing similar growths in other organs.

The type of carcinoma commonly found in the thyroid is the soft medullary form, corresponding histologically to the alveolar carcinoma. These tumors owe their development to a proliferation of the epithelium into the lumen of the vesicles, thus forming epithelial nests. The cells are usually cuboidal or polyhedral in shape, and occasionally cylindrical. As the vesicles become filled with

proliferating epithelial cells, the colloid substance in the vesicle gradually becomes compressed, and finally disappears completely.

Pavement-celled epithelioma of the thyroid have been described by Forester, Eppinger,[17] Lucke,[10] Kaufmann,[2] Bufnoir,[18] and Brundel.[19] In these the tumor originates not from the epithelium of the adult gland, but from pavement epithelium nests, remnants of the branchial cleft from which the thyroid is developed. These cases of pavement epithelioma of the thyroid are of interest clinically, as in those reported by Eppinger, Lucke, and Kaufmann no metastases occurred and the progress of the disease was very slow. Kaufmann considers the prognosis in them much better than in other forms of carcinoma because of the slight risk of metastasis occurring. In Brundel's case the disease possessed a high degree of malignancy and recurred within six months after removal of the gland.

It is only in exceptional cases that the tumor involves the whole gland; usually it is but one lobe or a small part of a lobe, and frequently one that has been the seat of a benign growth, that is affected.

In many cases we have both adenoma and carcinoma present in the same gland. In some it is difficult to sharply differentiate between the malignant and non-malignant growths; in others the carcinomatous tissue is bounded by a well marked zone of fibrous tissue which separates it from the adenoma. The right and left lobes of the gland seem to be affected in about an equal number of cases. In Kaufmann's[2] collection the tumor occupied the left lobe in nine and the right in eight, and the isthmus in two. In four carcinomatous nodules were scattered throughout the whole gland. The size of the tumor varies greatly. In the majority of the reported cases the tumor has been of small size. In some the gland was actually smaller than normal. Cramer,[5] von Eiselsberge,[4] and Friedman[20] each have reported cases in which the thyroid tumor was not recognized until microscopic examination of the metastatic growths pointed to the thyroid as the seat of the primary tumor. It has long since been shown that these secondary tumors preserve the type of the thyroid growth, so that their origin can be determined from their histologic structure. In Middledorph's[21] case the primary tumor in the thyroid was overlooked, and a metastasis in the upper end of the femur involving the hip-joint was treated by injections of iodoform emulsion for tuberculosis of the hip. At a later date another secondary growth appeared in the occipital bone. Histologic examination of this showed the tumor to be an alveolar carcinoma.

The thyroid was then examined, and in it a small nodule was found. Later other metastases occurred in the pelvic bones, the humeri, and in the opposite femur. The patient finally died without any increase in size of the primary tumor. On post-mortem this was removed and subjected to a histologic examination, which showed it to be an adenocarcinoma.

The study of bone metastases from thyroid tumors was first made by Müller,[22] who reported two cases, one having a solitary secondary growth in the ileum and the other multiple metastases in the bones. Shortly after the publication of Müller's paper, Cohnheim[23] reported a case of metastatic bone tumor which he considered was secondary to a struma gelatinosa because it contained what appeared to be normal thyroid tissue. He attributed this metastasis from a benign growth to some peculiarity of the individual rather than to any intrinsic characteristic of the new growth. Eberth[24] reported finding a tumor in a dog containing normal thyroid tissue, where the thyroid was the seat of an adenocarcinoma. In explanation of these metastases that seem to occur in benign growths, and of the normal thyroid tissue occasionally found in parts of the body remote from the thyroid, it can be said that heterotopic tumors composed of thyroid tissue have been observed in a number of cases. Morris[25] describes a pulsating tumor of the skull composed of thyroid tissue, and Gussenbauer[26] found a similar one in the vertebra. These thyroid tumors usually develop when the gland is removed, or when it becomes as a result of disease functionally inactive. Von Eiselsberge[4] considers that normal thyroid tissue is not present in metastases from malignant growths. He believes that most of what have been considered benign metastases are in reality adenocarcinomata. In a later publication he reports a case that would appear to support the statement that normal thyroid tissue may be present in secondary tumors. In a case in which the entire thyroid was removed for adenocarcinoma, the patient immediately developed tetany, from which she gradually recovered as the symptoms of strumathyreopreva developed. This latter condition lasted for several months, but gradually disappeared as a secondary tumor began to develop in the manubrium of the sternum. At the end of two years she had practically recovered from the strumathyreopreva. About this time the tumor in the sternum had reached a large size, and pressure symptoms had developed that called for its removal. After the removal of the tumor the symptoms of tetany immediately appeared, and, as after the strumectomy, gradually disappeared as the patient again relapsed into a condition of strumathyreopreva. This

continued until the time of the patient's death, although several other metastatic tumors appeared in the skin and bones. It would seem as if the secondary tumor of the sternum must have contained some normal thyroid tissue, otherwise it would be difficult to explain how it could vicariously perform the functions of a normal thyroid gland.

Most writers agree that metastases are more common in the lungs than in the bones. Von Eiselsberge considers the converse to be true. The frequency of metastases is shown by the cases reviewed by Hinterstoissier.[6] In fifty there occurred secondary tumors in the lung in twenty-nine, and in the bones in ten. Kaufmann[2] found metastases in twenty-one of the twenty-three cases first reported, and the same proportion in six published later. In von Eiselsberge's eight cases metastases were present in the bones alone in five; in three the tumor was solitary. Regional metastases occur in all cases and appear early in the disease. The glands first involved are those along the internal jugular and above the clavicle. Those of the anterior mediastinum ultimately become the seat of the secondary growths. Metastases in the lung may arise either from the cancer cells being carried through the blood-vessels, or from implantation carcinoma of bronchial tubes that develop after the primary tumor has perforated the trachea and particles of the tumor are aspirated into the bronchial tubes. From these implantation carcinomata others may arise from the cancer cells being carried by the lymphatics to the deeper parts of the organ. Of the bones, metastasis seems to occur most frequently in the sternum. Why this happens, and why the bones are so often the seat of secondary tumors, is not apparent. Another phenomenon not easily explained is the pulsation which is so common in these metastatic bone tumors. Cramer[5] reports two; von Eiselsberge,[4] Middledorph,[21] and Morris each one. In none did the primary tumor possess any marked vascularity.

Probably the most important feature of the subject is the diagnosis of cancer of the thyroid. The extremely high mortality that obtains in this disease, as is shown by the cases published, is in a large measure dependent upon the failure to make a diagnosis sufficiently early to allow of successful surgical treatment. In the first stage of development of the growth a positive differentiation from non-malignant struma cannot always be made. The symptoms of benign struma in nearly all cases antedate those of the malignant form, and unless the distinctive characteristics of the latter are carefully searched for, the malignant nature of the disease may be easily overlooked. This is particularly true in places where goitre is com-

mon and little attention is paid to moderately enlarged thyroid glands. On examining the histories of the cases reported, we find that in most instances, even in the early stages of the disease, certain symptoms are characteristic of malignant growths. Of these we have:

1. Rapid growth in a goitre that previously remained stationary for some time; especially in a person between the 30th and 50th years of life.

2. In nearly all cases pain is greatly augmented if the growth becomes malignant. In those in whom no previous enlargement of the gland was noted before the growth of the carcinoma began, pain was present from the beginning and was of severe character. It is usually referred to the ear, teeth, and temporal region. At times it radiates down the arm or is referred to the sternum. In the latter case there is usually a retrosternal tumor, either primary or secondary. In one of Lebert's cases pain in the stomach was a prominent symptom and was believed by him to be due to pressure on the vagus nerve.

3. Tenderness on pressure has been present in nearly all of the cases reported. In non-malignant struma the gland is not sensitive.

4. All of the pressure symptoms that may accompany benign growth are usually exaggerated in carcinoma. This is particularly true in the rapidly growing tumors, but is also present in those of small size and slow growth. Dysphagia when a symptom of thyroid enlargement is considered by Lücke as indicating either malignant disease or strumitis. Recurrent paralysis, which is a rare complication of benign goitre, is common in the malignant form. Dyspnea occurs early, and when the tumor is comparatively small it may result from compression of the trachea; usually from lateral pressure, from bending, or from the growth perforating the walls and filling its lumen. It may also result from metastatic deposits in the lung or from sternal or retrosternal tumors pressing upon the trachea or bronchi. Dyspnea may also follow paralysis of the recurrent laryngeal nerve.

5. Thrombosis of the veins, first of those conveying the blood from the diseased portion of the gland and later of the jugulars and cutaneous, is a usual accompaniment of cancer of the thyroid. This may occur in rare cases in benign growths in old and poorly nourished individuals. In carcinoma it is a constant and valuable sign. Kaufmann considers it one of the most reliable indications of malignant tumor of the thyroid. Hahn[27] in a recent paper calls attention

to this symptom and reports two cases from Bruns's clinic in which the diagnosis was made, in one of cancer and the other of sarcoma, by excising under local anesthesia a portion of a thrombosed cutaneous vein and submitting it to a microscopical examination. When thrombosis of the deeper veins is present, metastasis through the vascular system has already occurred, and the disease is no longer amenable to surgical treatment. Resulting from this thrombosis we have edema of the face and neck and occasionally of the upper part of the thorax.

6. Enlargement of the lower cervical lymphatics associated with a tumor of the thyroid is strongly presumptive of malignant disease and speaks for carcinoma rather than for sarcoma. Glandular involvement in carcinoma may occur before the primary tumor is palpable. The glands are as a rule hard and painful on pressure.

7. Fever, either of a continuous or remittent type, was a symptom in the cases reported by Cramer,[5] Poumet,[1] and Kaufmann,[2] and is mentioned by most writers on this subject. The explanation given by Cramer for the continuous fever that occurs in his cases was that foci of degeneration are constantly present, and absorption of these causes the elevation of temperature. He considers that in the remittent type the rise of temperature is coincident with the beginning of metastatic growths in distant organs.

There is nothing characteristic in the size, shape, or consistency of carcinomatous tumors of the thyroid. In some the growth is large and soft; in others irregular and nodular, with areas of softened tissue corresponding to foci of degeneration. As a rule the tumors are of small size and rather hard. They only rarely involve the whole gland and seldom invade the skin. Great vascularity of these growths is seldom seen. Lebert emphasizes the early appearance of cachexia, while Kaufmann holds that it occurs later than it does in carcinoma of other organs.

After a consideration of the above mentioned symptoms, the disease can be recognized in most cases. If any serious doubt exists exploratory puncture may be made. The dangers of puncture in such cases are hemorrhage, infection, and dissemination of carcinoma cells through the body. Again, after puncture the disease frequently spreads rapidly along the track of the instrument and involves the skin. Infection can be avoided, but the risk of hemorrhage or of dissemination of the disease from puncture of a vessel can never be eliminated. Excision of a lymphatic or of a thrombosed vein can usually be made without danger to the patient. Microscopic examination of these structures would conclusively

settle the question of diagnosis. Besides benign goitre, we must exclude sarcoma and subacute thyroiditis.

It is frequently impossible to exclude sarcoma without microscopic examination of the tumor. Rapid growth of the tumor, which usually involves the whole gland, and absence of lymphatic involvement argue for sarcoma. In differentiating carcinoma from thyroiditis, we must first exclude every possible source of infection. In both we may have temperature; in thyroiditis, areas of softening quickly appear. Puncture will then determine the presence of pus. Again, in thyroiditis, the cervical lymphatic glands, if enlarged, are sensitive, soft, and quickly suppurative.

The treatment in all cases where the patient is seen before metastasis has taken place is complete thyroidectomy. Solitary bone metastases do not contraindicate an operation. If secondary deposits in the lungs or other internal organs are recognized, they absolutely contraindicate anything but palliative treatment. The frequency of solitary bone metastases is an argument in favor of operative treatment where there is but a single secondary tumor discernible. In the cases collected by Hinterstoissier[6] there were ten with bone metastases, of which five were single. In von Eiselsberge's cases, five of the eight had but a single secondary bone tumor. The prognosis is also favorably influenced by the decided latency exhibited in the growth of these metastatic tumors. In one of von Eiselsberge's patients, eight years elapsed after the bone tumor appeared before the lungs were involved. In Middledorph's[21] case the patient lived three years after first bone metastases occurred.

The results of operative treatment are so far not encouraging. Morris[25] quotes Kuster concerning the outcome of fifty cases treated by complete or partial thyroidectomy. In eight death followed within twenty-four hours after the operation, in five within a week, and in eight within two weeks. Four remained free from recurrence for six months; only one was known to be well at the end of four years. In the cases not operated upon death results in most instances within one and one-half years, either from suffocation, hemorrhage, thrombosis, or cachexia. In the cases reported by Poumet,[1] Oser,[28] and Lebert,[29] death resulted from rupture of the carotid artery. In Franque's[30] the immediate cause of death was thrombosis extending from the internal jugular to the heart. In the majority of cases death results from suffocation, from pressure on the trachea, or from collapse of its walls. Cachexia and infection cause death in only a few cases.

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REMOVAL OF FOREIGN BODIES FROM THE AUDITORY CANAL.

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Anything that is small enough may be found at some time or other in the auditory canal of a child, having been placed there with its own hand. I do not know that I have ever seen an adult purposely place anything in the auditory canal. I have known children, while playing upon wheat soon after it was threshed, to get some of the wheat grains into the auditory canal. In one case the wheat grain had remained in the auditory canal some five years.

Now, one word as to removing foreign bodies of various kinds from the auditory canal, and then I will pass on to the point that I wish to emphasize, viz., the softening and removal of hardened wax. The only things needed, as a rule, for the removal of a foreign body from the auditory canal are these: First, a towel, to place over the patient; secondly, a basin of water made sterile; thirdly, a syringe; and lastly, a head mirror. A foreign body that cannot be removed by a stream of water from a syringe will be difficult to remove in any other way. A foreign body that has gotten into the ear, when there has been no instrumental interference, will be found in the outer part of the canal. A foreign body, unless it is comparatively small, will not often be found beyond the isthmus of the auditory canal. If manipulative means, the use of instruments, has not been resorted to, it is easy to remove such foreign bodies. In grown persons there is no need of anesthesia, but in children, even with the gentle stream of water from a syringe, I believe it is better to bring them under the influence of an anesthetic. Otherwise the foreign body may be driven so far back that it will be difficult to remove.

If it is attempted to remove a foreign body by means of forceps it will slip from the grasp and be forced farther back in the canal, and every attempt made with the forceps may force the foreign body just that much nearer the drum membrane. The probe, slightly bent, is sometimes used and may also force the foreign body back. The fact is, foreign bodies have been thus forced back against the drumhead, and even into the drum cavity itself. Another thing, in connection with the instrumental removal of foreign bodies, is that the canal will probably be injured and we will have bleeding and swelling. None of these things will take place if we remove the foreign body by means of the syringe. It is, of course, possible to drive the foreign body back in the canal with a syringe, but not so if proper care in directing the stream is taken. The stream of water should be directed where there is most space between the

foreign body and canal wall, and then as the return flow comes back the foreign body usually comes with it. The position of the head, of course, can aid. If we find the foreign body so large as to almost fill the auditory canal, we may aid the stream of water by posing of the head, by inclining the head toward the side in which the foreign body is located. Bugs not infrequently get into the ears of grown people and sometimes of children. When a live creature like a bug gets into the auditory canal we should first destroy its life, which is best accomplished by pouring oil into the ear, preferably castor oil or olive oil; or if there is no oil at hand we may use warm water and simply drown the bug.

Now we come to the study of accumulation of wax in the ear, which is nothing more nor less than a foreign body. In one case one ear had been plugged with wax for some thirty years, the patient being a maiden lady; but usually, when the ear is filled with wax, the patient is so deaf that he or she will seek relief sooner. These patients are so annoyed by the deafness and the noises that they often come at once to the physician or aurist to get relief. For a long while I tried to soften the old accumulations of wax with a solution of bicarbonate of sodium, glycerin, and water. I would tell the patients to take a pinch of bicarbonate of sodium, a teaspoonful of glycerin, and a teaspoonful of water, instilling some warmed into the ear. I would have them repeat this two or three times a day for one or two days, until soft enough to be removed with the syringe. I am thankful to somebody—I do not know who it is—for a method that is very simple, and which I propose to give. An author first gave the thought in the *New York Medical Journal*, and for some two years I have been following out that thought, which is to soften the wax by the instillation of dioxide of hydrogen. The peroxide is practically as good as the dioxide, except perhaps the peroxide is a little more acid and irritating than the dioxide. This is warmed and allowed to remain in the auditory canal five or ten minutes, and usually in this short time it will soften the hardest kind of wax so it can be readily removed with a stream of water. After instilling the dioxide of hydrogen five or ten minutes, if the accumulation of wax is recent a brownish, frothy liquid will be removed by the syringe, the wax being actually dissolved. Sometimes the plug, being only loosened by the dioxide, will be easily washed out.

There are people in every part of this country who are sufferers from the overaccumulation of wax in the auditory canal, and it is possible to soften the wax and remove it, as I have described, in a very few minutes.

BOOK REVIEWS.

A TEXT-BOOK UPON PATHOGENIC BACTERIA. For Students of Medicine and Physicians. By Joseph McFarland, M.D. Third Edition, Revised and Enlarged. Price, $3.25. Philadelphia: W. B. Saunders & Co.

Former editions of this work have been favorably commented upon in MEDICINE. It is a well-printed, handsomely illustrated, practical, condensed text-book, approaching the subject from a medical standpoint.

Bacteriology, while the offspring of the medicine of the past, has established itself as the dictator of the medicine of the future, especially in the management of infectious diseases. A brief history of the doctrine of spontaneous generation is given. It may be interesting to beginners in this subject to call attention to the fact that the discussion of the germ theory of disease was formally introduced at the April 6, 1875, meeting of the Pathological Society of London. Here it was discussed again and again, and Dr. Bastian ably fought for the view that organic fluids spontaneously produced bacteria and other low forms of life. This discussion took place twenty-five years ago, thirteen years after Pasteur had shown that fermentation was due to chemical changes due to living cells. It is well to call these dates to mind, as showing how very recently the vast superstructure of the relation of bacteria to disease has been constructed.

In speaking of infection and intoxication, Ziegler says "the entrance into the body of bacteria and their increase there" can no longer be accepted, as certain bacteria may begin their pathogenic effects before entering the body, as, for example, cholera may develop on the surface of the mucous membrane of the intestines. The time of infection varies in different species, in cholera as soon as the germ enters the alimentary canal, while the streptococcus infection takes place only when they invade the tissues. Pathogenic and non-pathogenic bacteria are spoken of as though they represented fixed conditions. Many bacteria which are ordinarily non-pathogenic may become a cause of disease under appropriate conditions. The classification of Kruse is quoted approvingly. It is based upon two main divisions, saprophytic and parasitic, the latter being divided into the occasional parasitic and the purely parasitic. The disposition of microorganisms in the body is said to be similar to that of inert particles. They may retain their vitality for a long period. The bacillus subtilis has been recognized in the spleen after three months.

Virulence is described as a disease-producing capacity of a microorganism. It is variable, no two cultures being identical in this respect. An ingenious explanation is offered by the writer as accounting for cultural differences. In a patient dead of puerperal sepsis, a germ was found which grew scantily on agar and blood serum. After being cultivated for a year or more, its virulence apparently disappeared, as five cubic centimeters could be injected into the ear vein of a rabbit without causing symptoms, while early in its history one-tenth cubic centimeter was fatal in twenty-four hours. The attenuation of this streptococcus is thought to be due to the varying influences of the culture method upon vegetative cocci, their progeny having been gradually picked out until they have entirely outlived the less vegetative but more pathogenic members

of the colony. By reversing the process, passing the culture through rabbits and using blood serum and ascitic fluid, the culture can be rendered more virulent. The frequency of mixed infections is emphasized; sometimes the accessory bacteria are unimportant, but sometimes they modify the leading bacteria.

The number of bacteria plays an important rôle in infection. With a very virulent germ, a small number introduced will cause a rapid infection. In germs that are feebly pathogenic, millions may have to be introduced to enable it to grow. The avenues of infection make a great difference in the development of a germ in the body. Thus, a virulent cholera germ injected into a vein or beneath the skin results in cholera septicemia, while if placed in the peritoneal cavity, cholera peritonitis results. The fatality of microbic diseases depends very largely upon the method of inoculation. Thus the general rule is deduced that bacteria have a selective action on certain parts and tissues of the body.

In discussing immunity and susceptibility, the writer speaks of two varieties —active immunity and passive immunity. In the former the cells of the body are conceived as destroying bacteria, or manufacturing destructive products to act upon them. In the passive form the cells take no part whatever, the resistance depending upon an introduced active principle. Immunity is the power of overcoming bacteria and annulling their toxic effects. Immunity is always a relative condition. Many animals are immune to as many bacteria or as much toxin as reaches them in the usual modes of infection, but will succumb to an excessively large number of bacteria artificially introduced.

Natural immunity is that peculiar to certain species of animals. Examples of this sort are innumerable; anthrax is a disease of warm-blooded animals, but never occurs in the cold-blooded. Racial differences are met: the Japanese are said to be immune to scarlatina and the negro to yellow fever. Natural immunity is due to the cells and the humors of the body. Phagocytosis is regarded as the result of immunity, and not its cause, the probability being that the bacteria are already dead when taken up by the leucocytes. In accordance with late views, the writer lays much stress on the protective power of the blood serum. That this view is not sufficient to explain all the phenomena of immunity is shown by the fact that the blood of the white rat is capable of destroying diphtheria bacilli, and it has the power of resisting enormous doses of the diphtheria toxin. Immunity is neither permanent nor constant, and varies with natural and artificial conditions.

Accidental and passive immunization are fully discussed. The exhaustive theory of Pasteur and Klebs is said to be of historic value only. The retention theory of Wernich is said to have more to recommend it. In closing the discussion of this matter, the writer says: "It must be evident that in investigating both natural and acquired immunity, we have unraveled a great mass of most interesting and important facts, and out of them have constructed a very fair knowledge of the reactions and phenomena of a process whose essence has so far escaped us. At present we only know natural immunity as a remarkable and spontaneous power of resistance or endurance, and acquired immunity as a similar power developing in animals not naturally so endowed. The ability of the animal to endure the toxins, which is the key to the whole situation, depends upon some tolerance, the nature of which has not yet been satisfactorily determined."

The first 143 pages of the work are taken up with the discussion of theoretical considerations, which form a most valuable *résumé* of late views on the important subjects of immunity and infection. The writer has given us an accurate *résumé* of the present status of the subject, presenting the leading doctrines, together with such deductions as the later studies in this department justify. The next 100 pages are taken up with a discussion of the methods of cultivating bacteria. The simpler and usual technique is described.

The description of microorganisms relating to specific diseases is up-to-date. Among the very latest is the bacillus dysentericus. The writer groups this organism with the colon bacilli in a separate chapter, under the heading, "Bacilli resembling the typhoid bacillus." The bacillus icteroides is set down as the specific organism of yellow fever. Pfeifer's bacillus is said to be the cause of influenza. The researches of Canon and Pielicke upon measles are given, but it is not stated that the organism described by them is the cause of the disease. A serious omission is the failure to mention the valuable researches of W. J. Class upon the bacteriology of scarlet fever. He has identified the specific germ of this disease with some degree of probability.

CANCER OF THE STOMACH. A Clinical Study. By William Osler, M.D., and Thomas McCrae, M.D. Philadelphia: P. Blakiston's Son & Co. 1900.

This is a brief monograph of 150 pages, based principally upon the study of the cases in the Johns Hopkins Hospital for the past eleven years. Judging from the quotations given one would conclude that there has been an increase of malignant disease in most countries from which reliable reports can be obtained. No positive answer is returned as to increased frequency of cancer of the stomach. Since the opening of the hospital in 1889, 150 cases of primary cancer of the stomach have been diagnosticated. The relation of age in the cases cited showed that by far the greatest number occurred in the decade between 50 and 60 years; that between 40 and 50 and 60 and 70 were not far behind in the number of cases. Only four were noted between 70 and 80, and after 80 none. None of the cases were below 20 years of age. The proportion of cancer of the stomach between white and colored was about the same ratio as the number of general admissions. In regard to heredity, it was shown that in the twenty-three cases that occurred below the age of 40 there was not one with family history of cancer. Thirty-eight of the cases gave a family history of tuberculosis, while only nine cases had a luetic history.

The relation of previous attacks of stomach trouble was inquired into with special care, having in mind the possibility of the development of a cancer on the site of a simple ulcer. In only four of the cases was there a history of symptoms pointing to gastric ulcer. None of the autopsies showed this condition. Thirty-three patients gave a history of stomach trouble before their present illness. Of these, seventeen had isolated attacks several years before, and some only single attacks, which seemed to have been an acute gastritis. Eleven had acute chronic stomach trouble for some years, and in some it had existed all their lives. Five had stomach trouble more or less constant for one or two years before the present symptoms became pronounced. A study of a series of hospital cases other than cancer of the stomach gave about the same proportion of gastric trouble. About one-half of the patients used alcohol regularly.

In speaking of the symptoms, the writers call attention to the saying of Brinton that cancer of the stomach is obscure in its symptoms. In studying

the disease, one must always be on the watch for unusual and unexpected symptoms. The typical symptoms of vomiting, loss of weight and strength, show in all varieties of latent forms in which there is not a single sign pointing directly to the stomach. A surprisingly large number of cases gave a history of an acute onset, in some instances referred to an indiscretion in eating or drinking. In thirty-seven cases the onset might be termed sudden. Of the symptoms on admission, ten had no complaint of stomach symptoms, eighty-four complained of pain, forty-six of vomiting, thirty-eight of dyspepsia, thirty-eight of loss of weight and strength. The three most constant symptoms were pain, vomiting, and tumor—pain in 130 cases, vomiting in 128 cases, and tumor in 115 cases. There were twenty-two cases without vomiting, eleven of which came to autopsy; in nine of these ulceration was present. In a surprisingly large number of cases the appetite was practically normal. In eighty-seven cases in which the stomach contents were obtained for examination, there were eighty which showed a complete absence of free hydrochloric acid. The importance of microscopic examination of the stomach contents is dwelt upon. Fever was observed in seventy-four cases. Constipation was present in ninety-two cases.

The writers give some interesting data regarding the tumor which was present in 115, or 76 per cent, of the cases. The value of a careful visual study of the abdomen in cases of cancer of the stomach is illustrated by the fact that in eighty-eight cases important information was gained in this manner. In sixty-two a definite mass was visible; in fourteen there was a prominence or fulness; in twelve peristalsis only was the prominent feature of the inspection. In ten of these no tumor was visible, but it was felt on palpation. In two the tumor was only found at autopsy. In fifty-two the tumor was seen to move with respiration; in sixty-nine cases the tumor moved with respiration either on inspection or palpation. In a large proportion of all cases in which a tumor of the stomach is visible, it follows to some extent the respiratory excursion. The study of the tumor as found in gastric cancer forms a strikingly original contribution to the symptomatology of this disease.

The blood findings in this disorder are in many points obscure. It may be very valuable in cases which show a striking resemblance to pernicious anemia, especially in the early period. The blood as a rule shows the character of secondary anemia, but in some cases with obstinate vomiting and great dilatation the blood count may be relatively high. The blood was examined in all the cases.

The work forms a very compact and useful monograph on an important disease. It is well issued by the publishers, and in laying it down we do so with a sense of pleasure and the hope that it will have many successors in American medical literature. Too much time and money are spent in issuing text-books which are mere repetitions of those that have gone before. Medical monographs, based upon a careful original study of a large number of cases, are sadly deficient in English medical literature.

EDITORIAL COMMENT.

"A STRUGGLE FOR LIKE LOBULE."

In the July, 1899, issue of MEDICINE we referred editorially to a new faculty and its localization, announced by Dr. Wallace Wood in the April 29 issue of the *New York Medical Journal.* That faculty was termed prothymia, which it seems had been indicated by a hitherto undescribed anatomical feature of the brain, and which the author described in the following words: "The metopon, or anterior metopic lobule, in the Newfoundland dog presents an appearance of swelling forward, or pushing or surging forward, while that of the pug dog shows a contrary tendency; it seems to slope or sag and hold back. This same willingness to come forward I found in the mesial metopic line of the black-and-tan dog, and this same willingness to come forwardness in the brain of the *Felis domestica*—the cat of either sex. The grand arch line of the brain of cats, as seen from the mesial surface, shows a back-upwardness, while that of good dogs shows a forwardness or forward-upwardness."

In commenting on the above we said: In observing the human we note the same back-upwardness that is to be found in the lower animals, and it is gratifying to know that this is due to a teratological defect in the metopic or coronal curve. The popular expression, "getting one's back up," is thus not to be ascribed to a simple infirmity of temper, as has often been done in the past, but is more correctly expressed as a surging forward of the anterior metopic lobule. We have always believed that the anatomical basis of psychology would have its beginnings in the study of the brain of the lower animals, but it seems to us that the author leaves us in considerable obscurity when he speaks of the wolf and panther as not coming forward with their metopic lobule or mesial metopic curve. He asserts that they come forward with a very different portion of their anatomy. Personal observation has convinced us that the domestic bulldog comes forward in a different way from other domestic animals, in this respect resembling some of the fierce wild beasts. We are left in doubt in this case as to what part of the cerebral mass brings him forward. If this could be identified it would be a step in advance, as these fierce traits are a menace to the life and happiness of others, and an identification of their anatomical substratum is the first step in their correction. It is to be regretted that the

author did not include in his studies that animal which is *facile princeps* in back-upwardness and not-coming-forwardness, the domestic mule.

As a sort of addendum to the foregoing, we have "The Struggle for Like Lobule," which appears in the December 15 issue of the *Philadelphia Medical Journal*. We are informed that this is "a study of the anterior temporal gyrus." According to the writer, "the posterior base of the brain presents three swellings, which from their appearance may be likened to root, stalk, and flower. These three swellings, as far as they have been investigated in human brains, have been rather looked upon as appendages of the three higher senses—smell, hearing, and sight. I confess that my study of ruminants has led me to a different conclusion, which is that these lobes are vital, belong not to the three higher senses, but are rather of the animus of the physique; that in the bull, *Bos taurus*, for instance, these lobes hold the animus of the bull tongue and bull throat and of the bovine corporosity, and the power of reproducing and propagating the bovine race. The natural inference is that in homo, a being that in many respects resembles this far from ignoble animal, these lobes have the same significance; that in them we are to seek the spirit of substantial living and lusty thriving, and sound propagating; in short, the root, stalk, and flower of vegetative life."

The writer is prepared, from dissection, preparation, casting, and photographing of the brains of something over one hundred ruminants, to affirm "that the posterior spheres in bos and homo are homologous." In the former communication on prothymia, the author has devoted his studies to the anterior portion of the brain—that is, if we are sure that the anterior metopic lobule is in the forwardness part of the brain. In this last "struggle" the posteriorness is the part which receives consideration, and instead of a coming-forwardness, we have a hanging-backwardness which allies man with the ruminants.

To show how carefully the writer has studied the cerebral architecture, he says that he begins first in the study of any brain to demonstrate the convolutions, superior frontal, middle frontal, superior temporal, and middle temporal, and that he is then attracted by various *eminences* which are of different shapes—the lobules, oval, quadrate, cuneate forms, which appear not only on the mesial but also on the cranial surface. When one has acquired considerable practice in brain preservation, one feels these lobes or eminences *latterly* thrust upon us. "The sphenoidal pole thrusts

itself forward, the bulb of the overocciput projects its pope's nose backward, the cone of the underocciput protrudes itself like a draco from under a mons, the paracentral lobule in many brains is exceedingly salient. One can hardly place his finger upon the cortical surface without touching an eminence or morphe, a definite form, head or tail, or body, a glomerus, a suggested spiritual organism."

It will be interesting to diners out to know that the lobule of the banquet has been discovered, for we are told that "the sphenoidal pole is gustatory; of this the evidence is conclusive. This stoma-looking lobule with its cross incision is the image of the glossopharyngeum, can be nothing else than the cerebral head of the glossopharyngeal nerve together with associate centers. It is the chef and criterion, the lobule of the banquet. In its labyrinths are the spiritual representations of the bountiful table of nature or of art."

Nothing in nature but suggests the opposite, so as the opposite of the banqueting center we have: "The opposing pole, the occipital, the united gyri fusiformis and lingualis, with terminal bulbs or ramps or lobules, from the superior or middle temporal, or the third occipital, or from two or all three of them, is the lobus genitalis. Its shape in primates is more or less paliform, and this form made up of stemons, ramps, or stamen-like or serpens-like double curves. This, then, is the 'burning bush,' the ever-budding 'rod of Jesse,' the *fleur de lis* 'fairy tree,' etc., the soul and maintenance of the life of the race, as its polar opposite, the sphenoidal pole, a veritable lobus succulentius, is the spiritual supporter or nourisher of the life of the individual."

In the above we have a suggestion of prothymia, for the writer tells us that this pole "bulbs or ramps" and rampancy seemed to be the peculiar characteristic of those parts of the brain where prothymia was to be found.

But what is to be done with the middle pole or lobule? The author leaves us very much in doubt. He asks: "Is it auditory?" "Is it gustatory?" "Is it the annex of the affection?" "Is it none of these?" "Is it all of these in association with something added?" He leaves us something to choose from when he says: "Is it not perhaps auditory, respiratory, and circulatory, and digestive; that it is a combined projection and association center for the acoustic, pneumogastric, the cardiac, phrenic, and intercostal fibers?"

He asks us where is the center for the breast, and replies that it must be here.

After having identified two such very important functions of the

brain and added so much to our knowledge of cerebral localization, the author closes with the statement: "Fear strikes to the heart. Where does it strike to the heart? Love emboldens the heart. Where does it embolden the heart? Here is the local habitation of gallantry, bravery. Is there a cogitation center under the temporal eminence, a pneumocardiogastric center? Yes."

We trust that he will continue his work upon cerebral localization until he has determined the exact centers which govern the bold heart, the faint heart, the weak heart, and possibly the rapid heart. It seems as if he were on the verge of discovering the cogitation center, and we would suggest that these most important discoveries be not restricted in their publication to journals of general circulation, such as the *New York Medical Journal* and the *Philadelphia Medical Journal*, but that he send some of the succeeding communications to the *Archives of Psychiatry*, for this will acquaint our *confrères* on the other side of the water with these important discoveries made by an American, and so frequently overlooked because some of our most important journals seem to be very infrequently quoted on the other side.

INTELLECTUAL LIFE IN THE PROFESSIONS.

P. G. Hamerton, in The Intellectual Life, has an excellent summary of the various professions in their relation to the free play of the intellectual powers. His well known and deservedly popular book is in the form of letters, and one of these is addressed to a young gentleman of ability and culture, who had not decided about his profession. He takes it for granted that a person of this sort would not choose a profession which did not permit of free exercise of the intellect. In speaking of the clerical profession, the writer says its felicities and its mild and regular discipline tend toward culture; it offers a happy combination of duties that satisfy the conscience, with plenty of time for exercise of the mind, and is of easy access to all classes of society. Although the life of a clergyman is favorable to culture in many ways, yet there exists in clerical thinking generally one impediment, namely, the overwhelming importance of the professional point of view. It is peculiarly difficult for the clergyman to obtain disinterestedness in his thinking, to accept truth just as it may happen to present itself, without passionately desiring that one doctrine may turn out to be strong in evidence and another unsupported. The more the priestly character

is developed, the more the intellect strives for the triumph of principles that are decided beforehand. The clerical profession offers tranquillity, shelter from the interruptions and anxieties of the more active professions, but it is compatible with intellectual freedom only so long as the priest remains a believer in the details of his religion.

The profession of the law provides ample opportunities for a critical intellect with a strong love of accuracy and a robust capacity for hard work. Some lawyers love their work as passionately as artists do theirs, and these are usually men of superior ability. Lawyers get the habit of employing their whole strength and knowledge for temporary ends, the purpose being the service of the client. Hence, they become acute and keen judges of that side of human nature which they habitually see, but they are not more disinterested than clergymen. Lawyers are often superior to philosophers in their sense of what is relatively important in human affairs; they know the importance of custom, and have in the highest degree that peculiar sense which fits men for dealing with others in the affairs of ordinary life. In this respect they are markedly superior to clergymen and superior to ordinary men of science.

The military and naval professions are too active and too much bound to obedience in their activity for the highest intellectual pursuits. A soldier's life in the higher ranks affords opportunities for the highest intellectual exercises, but the life of barracks and camps is destructive of continuity of thinking. It is these interruptions, and not any want of natural ability, that are the true explanation of the intellectual poverty which characterizes the military profession. Of all the professions, it is the least studious.

"The profession of medicine is, of all fairly lucrative professions, the one best suited to the development of the intellectual life. Having to deal continually with science, being constantly engaged in following and observing the operation of natural laws, it produces a sense of the working of those laws which prepares the mind for bold and original speculation, and a reliance upon their unfailing regularity which gives it great firmness and assurance. A medical education is the best possible preparation for philosophical pursuits, because it gives them a solid basis in the ascertainable. The estimation in which these studies are held is an accurate meter of the intellectual advancement of a community. When the priest is reverenced as a being above ordinary humanity and the physician slightly esteemed, the condition of society is sure to be that of comparative ignorance and barbarism; and it is one of several signs

which indicate barbarian feeling in our own aristocracy, that it has a contempt for the study of medicine. The progress of society toward enlightenment is marked by the steady social rise of the surgeon and the physician, a rise which still continues, even in western Europe. It is probable that before long the medical profession will exercise a powerful influence upon general education and take an active share in it. There are very strong reasons for the opinion that schoolmasters educated in medicine would be peculiarly well qualified to train both body and mind for a vigorous and active manhood. An immense advantage, even from the intellectual point of view, in the pursuit of medicine and surgery is that they supply a discipline in mental heroism. Other professions do this also, but not to the same degree. The combination of an accurate training in positive science with the habitual contempt of danger and contemplation of suffering and death is the finest possible preparation for noble studies and arduous discoveries. I ought to add, however, that medical men in the provinces, when they have not any special enthusiasm for their work, seem peculiarly liable to the deadening influences of routine, and easily fall behind their age. The medical periodicals provide the best remedy for this."

The above estimate of the profession as an aid to the intellectual life from a layman leaves little to be desired in careful statement. We have quoted verbatim that portion dealing with medicine as a profession.

SUICIDE IN RELATION TO MENTAL DISEASE.

The laity are prone to take very narrow views regarding suicide in an individual case. If questioned, the average layman will state that no one commits suicide while in his right mind. Others again believe that it is an act which marks freedom of the will, and that in all cases it is one severely to be condemned, it being in effect a cowardly retreat from the troubles of this world.

The scientific view puts suicide in the same relation as other acts, the circumstances of a given case determining whether it is due to mental disease or not. It, like other acts, ought to be judged in relation to the individual and environments. It is difficult for the average layman to appreciate the manner in which the expert weighs the acts of the insane; he is always looking for an absolute rule. For example, the simple act of removing one's clothing, if done in a bath-room for the purpose of cleansing the body, is a perfectly rational act, but if the same act is done in the public square it is

certain to attract attention and to raise very strong doubts as to the mental capacity of the person. In the analysis of so simple an act it is apparent that the surroundings are what gives it the quality of an insane act and not the act itself. Similarly, a belief in witchcraft may be perfectly rational in one who has always believed in demoniacal possession, as many of the unlettered in civilized communities and most barbarians do at the present time. Such a belief in such a person is no evidence of mental disease. The same belief in a person with a scientific education, and who for the greater portion of his life has never shown any superstitious tendency, would give strong evidence of mental change. In the same way the act of suicide is to be judged in relation to the previous history, the individual environment, and the mental condition at the time the act was committed. This recognizes that there may be perfectly adequate and rational motives impelling one to self-destruction, though as a matter of fact in the majority of instances there is a substratum of mental instability in which the judgment is somewhat warped.

Arnold Heller, in the *Münchener Medicinische Wochenschrift* of November 27, 1900, gives an analysis of 300 post-mortem examinations made upon suicides. Definite signs of mental disease were found in 15 per cent of the cases, but in nearly one-half it was found that the individuals were in the unrecognized stages of the acute infectious disorders, the menstrual epoch, or pregnancy, or other conditions, which for the time being altered the judgment and rendered them incapable of exercising sound judgment. His studies accentuate the importance of a carefully conducted autopsy in every case of suicide for the light which it throws upon the motives which lead the individual to the commission of the act.

THE PATHOLOGY OF FACIAL NEURALGIA.

The relation of facial neuralgia to the teeth is still one upon which the majority of the profession seem to have very vague ideas, though those who devote special attention to the study of this subject have a fairly well grounded belief as to the relation of tooth and nerve. That a well developed case of facial neuralgia is never relieved by extraction of the teeth is settled, but now and then we meet cases in which a part or all the teeth have been removed without curing the neuralgia, and it is rare to meet a case of neuralgia of the middle or inferior branch of the trifacial in which more or less operating on the teeth has not been done. In the light of modern knowledge we feel justified in asserting positively that

under no circumstances should a sound tooth be removed in a case of neuralgia. Of course diseased or suppurative conditions of the gums, infection of the teeth, and caries should be remedied, and a diseased tooth which has given trouble, and which does not admit of conservative treatment, should be extracted. It is exceptional that operations upon teeth give relief from even neuralgias of moderate severity and of short duration. We may say that those of longer duration and those presenting the clinical type of tic-douloureux are never relieved by operations upon the teeth. There is a general idea that facial neuralgias commonly have their origin in teeth, and this may be true; when we think of the peculiar relations of the nerve to the teeth we can readily understand how an infectious process can pass from these structures up the sheath of the nerve, ultimately involving the entire nerve trunk including the ganglia. When an infectious process has passed beyond the teeth and has involved the sheath of the nerve, it is not to be expected that operations in the mouth will relieve the pain; hence the removal of the teeth when sound, or as has sometimes been done, the removal of the alveolar process, is valueless as a means of cure. As a rule there are well marked clinical differences between facial neuralgia proper and pains about the teeth which are due to involvement of these structures. "Reflex" neuralgia having its origin in the teeth may be treated as a negligible quantity. This is not to say that a suppurative and carious process in the teeth may not result in pains which radiate into the face, but the distinction between this and pure types of clinical neuralgia is easily made.

ABSTRACTS.

MEDICINE.

Cyclic Albuminuria.—

G. A. Sutherland, in the *Clinical Journal* of September 26, 1900, gives an exhaustive study of albuminuria. This term was introduced by Pavy in 1885 as a substitute for such descriptive titles as "albuminuria in the apparently healthy," and "physiological albuminuria." The albumin commonly shows itself at a particular hour in the day—generally at nine, ten, and eleven in the morning —which has led to the French designating the term as "*albuminurie de la station debout.*" It is not claimed that cyclical albuminuria is the only functional albuminuria, but it is a distinct clinical form which can be readily distinguished from the albuminuria caused by pyrexia, fatigue, and the ingestion of certain articles of food. A certain cycle in the appearance of albuminuria is sometimes noted in Bright's disease, but these cases can usually be differentiated from the pure form of cyclical albuminuria.

In this condition, the urine upon rising contains no albumin; after the patient has been up for some time it is passed in increasing amounts for a time, and then diminishes, there being usually only a trace when the patient retires to rest. If the patient is kept in bed the albumin does not appear. One of these patients was kept in bed three months in all, during which time no albumin was present, but it reappeared immediately after the patient got up. Sitting up in bed will commonly lead to a small amount of albumin, but not so much as after adopting the erect position. Passive exercises or active movements do not induce the albuminuria while the patient is recumbent. The converse is not true; the albuminuria cannot be prevented when the patient is up, and it is not due to the taking of food. It is also not dependent upon exercise, but the latter increases it. If the patient rises in the evening, the albuminuria will appear as regularly as if he arose in the morning. The amount of albumin may be small, or it may be considerable, varying from 0.1 to 1.4 per cent. The amount commonly fluctuates from day to day; if the general health is good the amount of albumin is lessened. The total amount of urine passed by these patients is usually small, frequently much below normal. In some cases the amount of night urine is much greater than that passed during the day. Alkali-

albumin and serum-albumin have been noted by Pavy, and nucleo-albumin was found by Tessier.

In none of the writer's cases were casts found, even after centrifuging. Hyaline casts may be found upon repeated examination, and are not inconsistent with the diagnosis of cyclic albuminuria, but if other casts are found it is probable that an organic affection of the kidney exists. Sometimes this condition is noted accidentally in those who are apparently healthy, but it is more often found when the patients consult a physician for general ill health. The patients are commonly nervous, excitable, and emotional. Intestinal catarrh is sometimes present, and abdominal pain is often a marked symptom. Constipation is usually present. Anemia is almost always present. Commonly the heart's action is disturbed, but there are none of the more pronounced symptoms of heart disease. Sometimes tachycardia is present. A persistent increase in the cardiac action is also frequently noted, with a reduplication of the first sound at the apex. The pulse as a rule is soft and small. Sometimes a definite increase in the thyroid, with pulsation of the vessels of the neck, has been noted.

Gout and rheumatism among parents and relatives are frequent. Rheumatism with endocarditis is rare. A neurotic parentage is extremely common. A family type of the disease has not been determined, but several children of the same family may be affected. The majority of the cases occur at from 10 to 15 years of age. Comparatively few are to be found past 20. The earliest age at which it has been noted is seven years. Sex seems to have little relation to the disease, some writers reporting a preponderance of one sex and others of the opposite. Pure cyclical albuminuria may occur after an attack of nephritis, but it is in itself no evidence that the patient has had a preexisting nephritis. Early nephritis and later cyclic albuminuria are merely coincidental phenomena and do not stand in the relation of cause and effect. This form of albuminuria has a close relation to Graves's disease, and the cyclical albuminuria noted in that disorder frequently presents the same variation that we have in pure types.

There is no proof that in these cases there is organic renal disease; on the contrary, there is much to disprove the association of this condition with any known form of Bright's disease. Sluggish abdominal circulation with venous congestion has been suggested as a plausible explanation. Persistent treatment with abdominal massage and a flannel bandage, based upon this theory, was found to be inefficient. The underlying condition appears to

be a peculiar instability of the nervous system which is brought into prominence in the period of active development and sometimes is the result of an acute illness. The albuminuria is invariably of renal origin and is probably to be referred to as a vasomotor disturbance of the renal blood-vessels. The so-called diet albuminuria may frequently be mistaken for this form, and it can be readily distinguished by keeping the patient in bed. After breakfast, if no albumin appears in the urine while the patient is still in a recumbent position, the question is usually decided in favor of cyclical albuminuria. Albuminuria from prolonged exertion is easily distinguished from this condition, as it is only after such exercises that the albumin appears. Especial importance from the standpoint of diagnosis is to be attached to the signs of nervous instability. The duration of the trouble is very indefinite; cases have been reported in which ten years has elapsed with no change in the amount of albumin excreted and no alteration of the general health. The writer reports fifteen cases which were under observation in varying periods of from five and a half years to two months. So far as these cases go, they indicate a tendency toward improvement in the general health without signs of development of organic disease of the kidneys. Treatment should be directed to the general condition. In some cases the cyclic albuminuria ceases entirely and the accompanying symptoms vanish, while in others the symptoms sometimes persist for an indefinite period. Some of the cases continue in a state of nervous instability, and under stress of mental worry or overwork are apt to break down. A life in the open air should be recommended, and drugs are of little value.

The Blood Findings in Pernicious Anemia.—

Frank Billings, in the *American Journal of the Medical Sciences* for November, 1900, reports twenty cases of pernicious anemia. Twelve were males and eight females, with an average age of 44 years—the youngest 24 and the oldest 62. No exciting cause could be found in any case, and there seemed to be no special relation to alcohol, nervous shock, overwork, or to previous disease, excepting in one case in which syphilitic gumma of the soft palate occurred.

Among the symptoms was weakness, which was constant, and present in some degree even when the patient was at his best. Dyspnea and palpitation occurred at some time during the course of the disease in every patient. Constipation or diarrhea associated with fermentative dyspepsia was the rule. Nervous symptoms were

frequent, especially paresthesia of the lower extremities, and headache with dizziness was common. Sleeplessness and restlessness occurred in the late stages of all the fatal cases. The lemon-white tint of the skin was present in every case. In the majority of the cases the body weight was preserved.

The cardiovascular disturbances were an invariable feature. In every case there was a murmur over either the heart or neck, and the radial pulse was weak and compressible. There was splenic enlargement in five cases. The liver was palpable and enlarged in three cases. In only three cases were the stomach contents examined after a test-meal; free hydrochloric acid was absent in all. The temperature was elevated as a rule, but fever was never high excepting in a few cases before death in some of the fatal cases. A slight albuminuria occurred in five cases. The stools were negative as to parasites in all but one case; in this instance infusoria in large numbers were constantly present, associated with diarrhea. Hemorrhages in the skin occurred in the majority, and retinal hemorrhages occurred in four cases.

"The hemoglobin varied from 15 to 74 per cent, and the red corpuscles from 176,000 to 4,000,000. The leucocytes, on the average, were below normal. They generally corresponded to the degree of anemia, increasing during improvement and decreasing during decline. They increased in two cases just before death, a terminal leucocytosis.

"A differential count of stained specimens showed an average of 29½ per cent of mononuclear cells, which is about normal. Very frequently there is a percentage increase of the small mononuclear cells. This would, at first glance, look like an absolute increase of the small mononuclears, and possibly account for the incorrect statements made by authors upon this point. The increase is only relative. It may be observed in these cases that the high percentage count of the lymphocytes was nearly always accompanied by a small number of leucocytes per cubic millimeter within the normal limits. What actually took place was a diminution in the number of polymorphonuclear neutrophiles, both relative and absolute.

"The eosinophiles showed a disposition to increase with improvement and to diminish with failing health, but this disposition was too fickle to enable one to formulate a rule concerning them.

"The myelocytes were most abundant, broadly speaking, when the patient was low, but they appeared to be of little diagnostic or prognostic importance. These cases seem to show that the nucleated red cells are an essential feature of the disease. They were present

in every case, although they often disappeared when the patient made a decided gain in health. The actual number was sometimes very large—in one case 10,336 per cubic millimeter—but more often it was small. The average number present in a cubic millimeter, with the exception of the case in which the number was so large, was 71. With this small number it often requires a prolonged search to discover them in the ordinary smear.

"In individual cases a comparison of the number of nucleated red cells present from time to time was of considerable value, but when a small number was present it was not necessarily a favorable sign. Many cases were characterized throughout by a scarcity of nucleated reds, and again they were diminished before death. The quality of the nucleated cells seems of greater significance than the number. The regenerative forms or normoblasts are of little consequence, but the degenerative forms or megaloblasts are very characteristic. In many cases they were present, and in fact the diagnosis could not well be made in their absence. The proportion of megaloblasts varied with the severity and stage of the disease, usually gaining a numerical ascendancy over the normoblasts when the disease was advanced. Irregularity of the nucleus in the normoblasts often means an attempt at division; in the megaloblasts it is more often an incident in the process of degeneration and absorption of the nucleus. Megaloblasts therefore which have irregular nuclei represent a greater degree of degenerative change than the ordinary variety. This peculiarity was noted in almost every one of the series, and often when other findings were not decisive. This variety of nucleus is probably seen rarely, if at all, in secondary anemias.

"Poikilocytosis was present in all cases, and in no case did it entirely disappear at any stage of the disease, including the period of greatest improvement.

"Polychromatophilia was present at some time in all of the cases, but was not a constant factor during the course of the disease, and especially during the stage of improvement."

Fatal Angina Pectoris Without Cardiac Lesions.—

T. E. Bullard (*Medical News*, Dec. 22, 1900) reports the case of a patient weighing 186 pounds, who was strong and active and to all appearances in robust health just previous to his death. He had not had syphilis. In the year 1892 he enlisted in the army, and while in service he did a good deal of football and athletics. He had been a heavy smoker. While in the service he had an attack of

heart trouble. Shortly after his discharge he reenlisted, and in the spring of 1896 he was discharged for disability. The trouble was an intense pain in the heart, cramps in the arms, and required large doses of morphine, digitalis, and nitroglycerin. One of these seizures was so severe that he was thought to be dead. Shortly after this history was obtained, the physician was sent for to see him in a paroxysm of pain in the cardiac region. At the time the muscles were cramped, and he had stopped breathing. Then came a cessation of the pain and a relaxation of the spasms, followed by rapid breathing, when the paroxysm was repeated. His pulse during the interval was about 130; during the paroxysms it was very faint and slow. The next attack was May 19, 1896, which was not repeated until July 7 of the same year. There were attacks on the 9th, 14th, 17th, 22d, 25th, and 31st of July, and on August 4, 6, 9, and 12. The seizures recurred at decreasing intervals and with increasing severity until the following spring, when the intervals increased and the severity of the attacks decreased. During the attacks there was no wheezing in the tubes. Exertion did not seem to bring them on; a cold or damp day was sure to bring on a seizure, which frequently occurred from seven to ten o'clock in the evening. Upon only one occasion did he have one in the daytime, and that was after a sharp walk in the hot sun. In all, 105 attacks were noted. The seizures were always severe, and the muscular spasms so marked that the patient could be lifted from the bed without the slightest flexion of the body or the extremities. Frequently the respiration ceased for so long a time and the pulse became so feeble that he seemed to be dead. At first morphine was largely relied upon to relieve the attacks, and the dose had to be repeatedly increased until from eight to ten grains was given. Later etherization was employed, which would stop the spasm. When it became almost impossible to anesthetize him with ether, chloroform was tried, which worked well at first, but later had very little effect.

The patient disappeared for a time, but was seen again in the winter of 1898–99, when he had several attacks. November 27, 1899, he was found to be in an unusually severe one; the spasms continued during the night, notwithstanding the administration of strychnine, nitroglycerin, morphine, and occasional inhalations of chloroform. The pulse became more feeble, and he died at 6.40 A.M.

At the autopsy numerous adhesions were found between the left pulmonary and costal pleura. The heart weighed, when removed, fourteen ounces and two drachms, and was displaced somewhat to

the right. The heart was immediately sent to Dr. William Osler for examination, who replied as follows:

"The heart was of average size for a man of 186 pounds. Considerable amount of subpericardial fat. No pericarditis. The pericardium was everywhere smooth and glistening. The muscle of the left ventricle looked beefy and red; the wall measured in thickness 15 to 20 millimeters. The papillary muscles were not sclerotic. The mitral segments were thin and showed no marked abnormalities.

"Right ventricle, muscle looked red and natural. The tricuspid valves were normal. The pulmonary artery measured exactly seven centimeters across the top of the valves. There was no sclerosis, and the valves looked normal. The aorta measured not six centimeters just above the ring, a small vessel for a man of five feet and ten inches, weighing 186 pounds. The arch only admitted the index-finger to the middle of the second joint. The anterior coronary artery was not sclerotic. There were a few flakes of atheroma along its course. Its orifice was large, unusually so, nearly four millimeters in diameter. There was no atheroma in its immediate vicinity. Posterior coronary artery was not so large; quite free in its course. There was a small supplementary coronary artery. No atheroma in the neighborhood; no atheroma in its course. No thrombi or emboli in either vessel. There were a few scattered flakes of atheroma in the aorta. The aortic valves were a little thickened about the corpora Arantii and about their attachments.

"On slicing the heart muscle it was red and natural looking; no infarcts; no sclerosis of its muscular fiber nor of the walls of the blood-vessels.

"In men under 30 years of age angina pectoris is a very rare disease. There are cases of syphilis in which an acute aortitis is associated with severe and even fatal angina. More common are the cases of a neurotic type in high-strung nervous persons who have been heavy smokers and given to excesses of all kinds. I have notes of four or five of this sort in young men, and have described them in my monograph on angina pectoris (pp. 94–95). In Dr. Bullard's case the extent of the muscular spasm was unusual, although it is not unknown in the ordinary form of the disease. The association of epileptic seizures with angina has been described in the monograph (p. 64). The intensity of the attacks, their long duration, the fatal termination, and the negative condition of the heart and arteries, make the case one of unusual interest."

Diseases of the Bronchial Glands.—

J. N. Hall, in the *Philadelphia Medical Journal* of December 1, 1900, says that American medical literature is singularly barren upon this subject, and from the fact that cases are so frequently reported in the English literature he feels sure that these glands are more frequently involved in that country than in this. The bronchial glands are over a score in number and are grouped about the bifurcation of the trachea, being larger and more numerous upon the right than upon the left side. A chain of small glands extends upward along the recurrent laryngeal nerve and another along the right. These glands communicate freely and receive the lymphatics of the neck. They are related to the supraclavicular glands by those found immediately behind the sternoclavicular articulation. Along the bronchi are smaller glands of less importance, but nevertheless capable of causing considerable trouble. All of these glands are relatively larger in the child than in the adult. These glands are enlarged when the lymph glands of the entire body are involved, the largest being found in connection with diseases of bone.

In tuberculosis there are important changes in these glands. They are enlarged, often show tuberculous granulations, and sometimes an inflammation with diffuse infiltration in which no granulations are to be found. Sometimes they undergo cheesy degeneration, and those nearest the lung are likely to be deeply pigmented. Extensive degeneration of the gland with very considerable enlargement may be found in cases in which the tubercular disease of the lung is comparatively slight. In most children after death these glands are found to contain the bacillus tuberculosis. General miliary tuberculosis probably originates more frequently from the bronchial glands than from any other source. That the lung may be secondarily involved from the lymphatics is shown by the fact that the disease often involves both lungs and spreads outward from the hilum, contrary to the general rule. The involvement of the glandular apparatus in the tuberculous process is much more frequent in children than in adults. One office of the lymphatic gland is to protect the organism from a general infection, the gland filtering out from the lymph stream the individual bacilli and holding them in a place of comparative security. It is only when the number of bacilli becomes very large that the gland is overwhelmed and the infection passes further on. It is possible that a general tuberculosis may be due to an ulceration of a lymphatic gland breaking into a vein. The calcareous degenera-

tion of the gland is a conservative process which limits the infection and imprisons the bacilli. An acute process in one of these infected glands which ends in suppuration may lead to the development of pleurisy, pericarditis, or it may perforate the pulmonary artery or the aorta. Sometimes it opens into the esophagus, with an evacuation of the pus externally. If the bronchial tract or pulmonary parenchyma is invaded, an intense capillary bronchitis is often set up, resulting in many cases in abscess or gangrene. Enlargement of the lymphatic glands may cause pressure upon neighboring organs, this being due to the fact that they are surrounded by unyielding tissues, and in the behavior of such glands there is a marked difference between those in the thorax and those in the abdominal cavity, the latter causing less disturbance owing to the fact that they are in a cavity with yielding walls which readily accommodates itself to pressure.

The diagnosis of enlarged bronchial glands is often difficult, but can sometimes be reached by exclusion. In the treatment, cod-liver oil and the syrup of the iodide of iron, as well as the general tonic measures indicated in general tuberculosis, should be used. Creosote is said by some to be of value. In cases due to syphilis, the iodide treatment should be pushed vigorously. In those in which suppuration develops it may be possible to evacuate the pus by aspiration, though it is rare that this has been successfully done.

Hysterical Deaf-mutism.—

Gordon King, in the *Laryngoscope* for November, 1900, describes the case of a carpenter of healthy parentage who had always enjoyed fairly good health. He was a man of good intelligence and able to read and write. Aside from an occasional tendency to despondency, he gave no history of nervous trouble. His life had been somewhat irregular. Six days before coming under observation he had attended a spiritualistic séance, during which he had been given a piece of paper and a pencil and seated at a table to do the "spirit's" bidding. He became nervous and frightened. He returned to his house and threw himself upon the bed. On attempting to arouse him shortly afterward, he was found to be unconscious. A physician was summoned, who succeeded in arousing him, but from that time on he was completely deaf and unable to utter a word. He had perfect control of his other faculties, and communicated with those around him by writing. This condition continued without change up to the time of his entrance into the hospital, where a careful physical examination revealed

nothing abnormal. When commanded in writing to speak, he would make strenuous efforts, but the lips and tongue failed to act, and the larynx gave forth no sounds. There was no sound perception. Hypnosis was easily induced, but did not aid in overcoming the difficulty in hearing. Electricity was then used to stimulate the dormant auditory nerves. Two electrodes were used, one being placed over each mastoid process, and a rather strong galvanic current was turned on. The patient was startled by the shock, but did not exclaim. This was repeated several times until it caused headache and dizziness. The faradic current was tried with the same result. Later efforts at hypnotism were alike futile, but persistent efforts at teaching him to speak resulted in his being able to pronounce his name in a drawling tone; later full command of speech was attained. There was no improvement in hearing. The ear-trumpet was used, and shouting loudly into it the patient started, stating that he felt the vibrations in the ear, but that he did not hear. The effort was repeated, and after a time the patient stated that he began to hear a sound, but could not understand it. At the end of a half-hour hearing had completely returned in the left ear. The following day the right ear was operated on in the same way, and in a half-hour hearing in that ear was normal.

Progressive or Pernicious Anemia.—

Alfred Stengel, in the *Medical News* of October 20, 1900, says that an accurate definition of this disorder is impossible. Addison regarded it as a form of anemia without definite cause. At the present time the majority of observers are disposed to include in this category cases which are not progressive, but are distinctly relapsing. The view that regards the disease as essentially a disturbance of the blood-making organs can no longer be maintained. The changes in the bone-marrow are now generally looked upon as secondary. This disease results from the rapid destruction of red blood-corpuscles which the blood-making organs are unable to replace. The distinction that has been made between primary pernicious anemia and that occurring in pregnancy or accompanying intestinal parasites can no longer be maintained. The disease is to be regarded as secondary in all cases, with a characteristic clinical course and with certain peculiar blood changes. The writer describes briefly the changes noted in the blood, but tells us that we must not arrive at this diagnosis by any one condition or by a limited number of conditions.

There is a disposition in some quarters to withhold the diagnosis

of pernicious anemia, especially in cases with the blood-count of an extreme anemia, while on the other hand there are those who make the diagnosis when the blood-count and the general condition of the patient are seemingly but slightly affected. Neither of these methods is judicious. The disease can be recognized before there is an exteme reduction in the number of corpuscles, and while the patient is still in a comparatively good state of health. The writer would class cases under this head which present suspicious clinical features, in which the red corpuscles number less than 1,500,000 per cubic centimeter, and in which the hemoglobin shows about the same reduction. The diagnosis becomes certain in cases in which the hemoglobin is relatively in excess, and in which great alteration in the size and shape of the red corpuscles and the presence of large nucleated red corpuscles are observed. The disease is incurable, but prolonged remissions may often be obtained by judicious treatment. One of his cases has been under observation since 1892, and is still in good health. Medicinal treatment unquestionably aids in securing this favorable outcome, and when a period of improvement has set in, the continued use of proper remedies secures for the patient the continuance of his favorable condition. No case is so far advanced as to warrant a hopeless feeling regarding the treatment. He has several times noted temporary recovery in which the patient was comatose and unable to retain food.

The Symptoms of Disseminated Sclerosis Due to Malaria.—

Wm. G. Spiller, in the *American Journal of the Medical Sciences* for December, 1900, reports a case of fairly typical symptoms of disseminated sclerosis which upon autopsy was found not to have any foci of new-formed tissue in the central nervous system, but all the capillaries of the brain and spinal cord were filled with small black particles which upon microscopic examination were found to be the estivo-autumnal form of the malarial parasite. The patient was admitted to the Philadelphia General Hospital some four or five years ago, and nearly four years before that time had an attack of hemiplegia, and long prior to that time a chancre. There was an atypical character in the symptoms; he was distinctly ataxic on the left side and spastic on the right, there being a wide difference in the symptoms found in the lower extremities. He had a somnolent expression; there was scanning speech and a marked intention tremor. Upon autopsy the right crossed pyramidal tract seemed sclerotic, but no distinct foci of connective tissue were found anywhere in the nervous system, which was examined throughout.

The writer gives a review of the history and finds a number of cases of paralysis and other diseases of the nervous system which are clearly traceable to malaria. Several cases clinically resembling disseminated sclerosis have been reported. In the case which is described, it is assumed that the malarial parasite had existed in the central nervous system for a period of eight or nine years. It is said that this may be a case of the malarial parasite being absent from the peripheral circulation; hence, with an ordinary blood examination it may not be detected. A number of the cases of so-called disseminated sclerosis which have been reported as due to malaria came from those regious in which the malarial parasite is most prevalent; consequently the graver symptoms of malaria are met with. Several of these cases were cured by the administration of quinine. It is evident from a perusal of Dr. Spiller's article that neuropathologists can no longer treat malaria in the "step-motherly" fashion which has so long prevailed.

Thimbles for Massage of the Seminal Vesicles.—

J. R. Eastman, in the *New York Medical Journal* of October 27, 1900, says that massage of the seminal vesicles is difficult, unless the physician has an exceptionally long index-finger. Taylor says: "It is no easy matter in many cases to reach the vesicles and clearly define their size and shape, even when every favoring condition is present." Eastman says that the common view that shortness of the index-finger prevents proper massage is only in part correct, as rigidity of the perineum is one of the important elements. Other things being equal, a long finger will massage the vesicles more efficiently than a short one. In all cases the major portion of the organ is beyond the reach of the finger, as even with the longest finger one cannot reach beyond the middle of the vesicle. The accumulation of pus and mucus in the vesicles which it is sought to relieve is in all parts of the vesicle, and if the massage does not reach to the upper portion it fails in emptying the sacs. To remedy this defect he has devised what he calls a "thimble." It is made of brass and is nickel-plated, and slips over the index-finger, adding about an inch and three-quarters to its length. The distal end is rounded, and there is a slight bulge of the surface upon the palmar side. The shank of the thimble is slightly curved, the convexity being forward. In using the thimble, the patient stands with his body bent forward at a right angle; the instrument is introduced, the palmar surface being forward and the concavity of the thimble toward the rectum. When fully introduced, the hand is turned

with the concavity toward the bladder. In this position the projecting anterior face of the end of the thimble will rest high up on the body of the vesicle or above it. While gentle pressure is maintained, the thimble is drawn slowly forward along the line of the vesicle, the maneuver being aided by counter-pressure of the free hand over the lower abdomen.

Recovery of Mastoid Abscess Without Operation.—

J. D. Harrigan, in the *New York Medical Journal* of November 12, 1900, reports a case of a girl seven years of age who came under observation May 10, 1900. The history of the patient showed that in the month of February preceding she experienced severe pain in the left ear. This continued without intermission for two days, when there was a profuse purulent discharge. This gradually became less, and finally ceased May 2. The pain then increased, there was redness and swelling behind the ear, the condition became unbearable, and an operation was advised. The child was emaciated, weak, and feverish, the thermometer registering 102° and the pulse 140. Operation was urged, but declined, the parents feeling sure that in the weakened condition of the patient she would not rally from the operation. It was noted that fifteen drops of a 15-per-cent solution of peroxide of hydrogen, followed by a copious injection of hot water, gave relief from the pain. This was continued every two hours, and heat was also applied to the ear. Under this treatment the pain became less, and there was a slow subsidence of the inflammation. Eight days after beginning treatment the discharge and inflammation had ceased. Five months from this time the patient was well.

In commenting on this case, the same journal says editorially that the recovery of this patient does not warrant reliance upon it, though in cases in which operation is declined, or in which the condition of the patient is such that it is feared that he will not survive operation, the treatment may be tried.

The Agglutination Tests in Enteric Fever.—

W. G. Savage, in *The Lancet* of November 17, 1900, has studied the agglutination test in reference to its variations in different cultures of the typhoid bacillus and of the colon bacillus, and also in reference to the clinical histories presented by the patients. It is shown that well marked differences of agglutination appear to exist between typhoid bacilli obtained from different sources. It is certainly true when broth cultures are used, and to a less extent

when solid media are employed. Such differences are not sufficient to justify us in designating them as separate varieties, but are to be explained by different environments of present or past cultures.

The most interesting of the observations relate to the agglutination reaction in reference to relapse. In a number of cases with distinct recrudescence of the fever, the development of the rose spots, and the characteristic temperature, it was found that in each instance, although these were but three in number, there was a very feeble agglutination reaction just preceding the relapse. On the contrary, a number of cases which showed a very feeble agglutination reaction were not followed by relapse.

Differential Diagnosis in Diseases of the Gall-bladder and Ducts.—

C. E. Brewer, in the *Medical Record* of November 17, 1900, gives a careful study of the literature on this subject, together with his personal experience. He says that the time has arrived when by a proper classification and study of the symptoms considerable accuracy can be reached in diagnosis of the portion of the gall-tracts involved. The most important contribution to the subject recently published is that of Hans Kehr (Anleitung zur Erlernung der Diagnostik der einzelnen Formen der Gallenstein-Krankheit), who reports 433 operations upon the gall-bladder and ducts in which the symptomatology in each case is carefully recorded. He divides the cases into twelve different classes, which Brewer thinks is somewhat complicated. A rearrangement and an exclusion of certain rare conditions, such as actinomycosis, tuberculosis, and gumma, give a division into three groups: (1) Calculous diseases; (2) inflammatory diseases; and (3) new growths. A diagnosis chart is given in which these three pathological conditions are studied in reference to pain, fever, vomiting, jaundice, tumor of gall-bladder, urine, stools, liver, spleen, and ascites.

Vaccine Infection of the Lip.—

Alfred Jungmann, in the *Wiener Klinische Rundschau* of September 23, 1900, described a case, and so far as we know this is the only case given in the literature of direct accidental infection of another. The patient was a nurse who cared for a child a few months old which had recently been vaccinated. The child was very ill for two days and was constantly in the nurse's arms. It had the characteristic vaccination pustule upon the arm, and a number of characteristic pustules appeared on the upper and lower

lip of the nurse. The appearance of these was accompanied by fever and all the systemic phenomena of vaccination. The writer discusses the possibility of such contagion, how it may accidentally have been conveyed by the hands to the lip, or kissing the child might have carried the infection.

A very interesting case described is that of a physician who was accidentally inoculated upon the nose by a small splinter from a point which separated in making a vaccination and was thrown with some little violence against the nose.

SURGERY.

Separation of the Abdominal Muscles.—

J. C. Webster, in the *Journal of the American Medical Association* of December 22, 1900, says that separation of the recti abdominis muscles and stretching of the linea alba frequently produces abdominal and pelvic disturbances in women. Fifteen years has elapsed

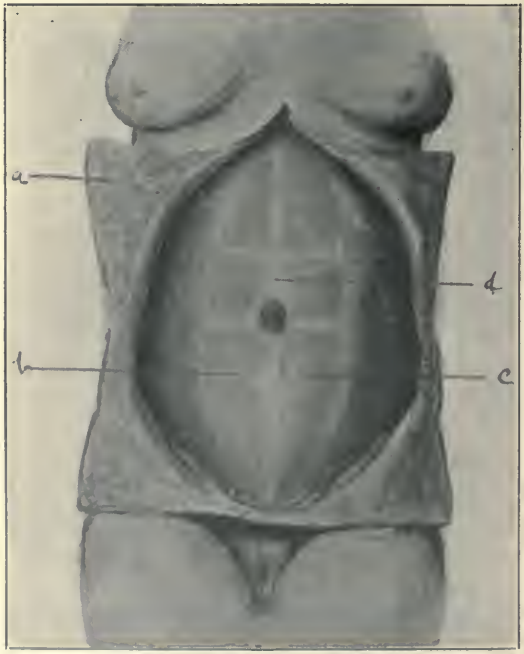

FIG. 1.—Dissection of anterior abdominal wall in a nullipara. The normal relationships are shown. *a*, Skin turned aside; *b*, *c*, recti abdominis muscles seen through their anterior sheath layers; *d*, linea alba.

since the publication of Glennard's work on enteroptosis, but the profession have given comparatively little attention to the subject. Investigations by him which cover the last two years have led to the belief that intra-abdominal pressure associated with visceral displacements is the chief source of trouble in many cases in which abnormal symptoms are considered as neuroses or as reflex disturbances due to some pelvic lesion. Especially to one condition he directs attention, namely, the muscular and tendinous structures

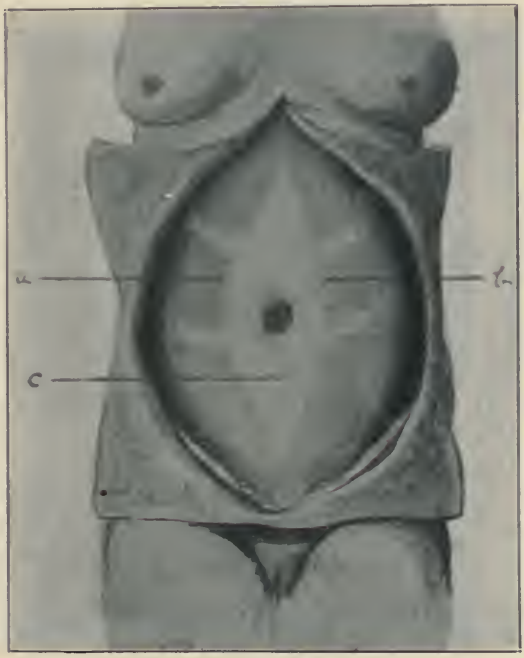

FIG. 2.—Dissection of anterior abdominal wall in a multipara, with diastasis of the recti muscles. *a*, Inner edge of right rectus; *b*, inner edge of left rectus; *c*, linea alba stretched and thinned.

which make up the anterior wall of the abdomen. The average specific gravity of the viscera is but little more than water; hence, pressure at the surface is distributed at right angles to the latter in all directions. There is evidence to the effect that the ligamentous structures perform a very slight office in supporting the organ under normal conditions. In women a general weakness or laxity of the abdominal wall is a rare condition, and what is described as such consists in a separation of the recti and a stretching of the linea alba. The significance of this condition is generally overlooked. The

amount of separation of these muscles varies in different cases; in some it may extend for only an inch or two from the umbilicus, while in others it may involve the whole linea alba. The more marked the separation, the thinner the tendinous structures become, so that in some cases the separation may be as great as five or six inches at the umbilicus. The normal conditions are shown in Fig. 1.

During the past two years the writer has not examined a pendulous abdomen in which these conditions were not present. In no

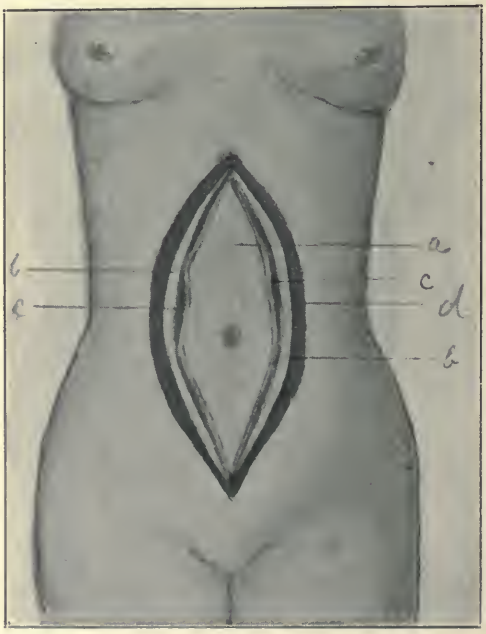

FIG. 3.—Operation for repair of weakened abdominal wall. The drawing represents the inner edges of the separated recti muscles exposed. *a*, Stretched and thinned linea alba; *b*, anterior layer of sheath of rectus; *c*, edge of rectus muscle exposed by opening sheath; *d*, skin and subcutaneous tissue.

instance was there any general stretching of the abominal wall unaccompanied by marked separation of the recti muscles. The abnormal condition is shown in Fig. 2.

The most important cause of this condition is child-bearing. In the great majority of women there is in the later months of pregnancy some separation of these muscles. If, after delivery, retraction of the abdomen does not take place, there may be a permanent widening which may be increased by subsequent pregnancies, or a

strain or fall may be the starting-point, and the wearing of corsets an important predisposing cause.

The inevitable outcome of such a condition is enteroptosis of different degrees, depending largely upon the mode of life and dress. In some cases no descent of the viscera can be made out, but in those accustomed to tie the skirts tightly aroung the waist it leads to an increased abdominal pressure; the visceral displacement most frequently found is a descent of the right kidney. Sometimes the transverse colon and stomach share in this descent. Prolapse of

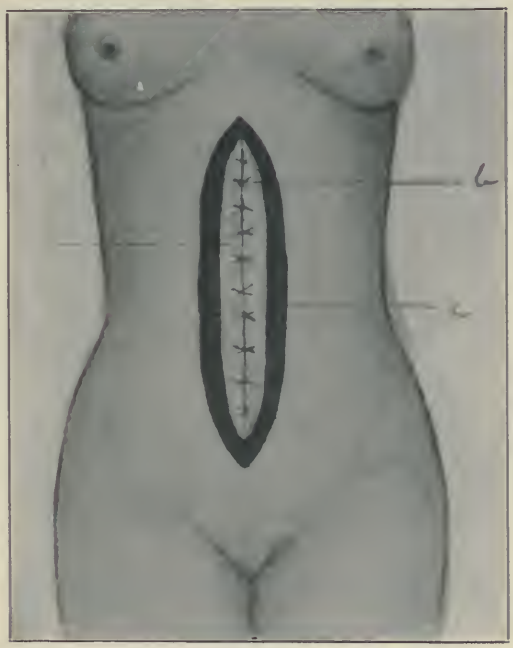

FIG. 4.—Operation for repair of weakened abdominal wall. The drawing represents the recti muscles with the fascia covering them drawn together and sutured by strong linen. *a*, Fascia forming auterior sheath layer of rectus; *b*, line of junction of the muscles and sheaths; *c*, skin and subcutaneous tissue.

the pelvic floor is frequently met with, associated with retroversion of the uterus.

The symptoms vary greatly. There may be weakness and dragging in the back and abdomen, the bowels are usually sluggish, pains may be felt in the iliac, lumbar, and other regions. Various dyspeptic symptoms may be present. In the diagnosis of the condition the patient should be made to lie flat on the back; the physician places the finger-tips of his right hand on the middle line of the

abdomen near the umbilicus, his left hand grasps the patient's hands, and she is asked to raise her head and chest somewhat from the table. As the muscles shorten, they tend to approach the middle line. In this way the extent of the separation is determined. In many cases in which the condition is marked, this test is not necessary; as the patient lies relaxed on the back, the edges of the separated muscles are easily palpated, or a distinct groove may be noted along the middle line of the abdomen.

In the treatment of this condition the patient should be instructed to give up the use of corsets and to suspend the skirts from a loose waist, or from the shoulders. This simple remedy will give relief in

FIG. 5.—Patient (Mrs. D——) with marked separation of the recti. The photograph represents the marked bulging between the recti as the head and chest are raised from the table, the abdominal muscles being thus made to contract.

cases that are not very marked. With marked atrophy of the abdominal muscles due to the corset, massage may improve the condition of things, particularly if it is accompanied by moderate gymnastic exercises. An abdominal support may give temporary relief, but it is followed by the inevitable atrophy and weakening of the trunk muscles. It must be frequently removed, and is a source of discomfort in hot weather.

Operation will give relief in extreme cases. It is carried out by making an incision in the middle line which may pass to one side of the umbilicus, or if the latter is deep and difficult to clean, it may be dissected out altogether. The incision extends to the edge of the recti muscles, which are opened and sutured together by strong

linen which is left permanently buried. The sutures include the bodies of the rectus muscle and the anterior portion of the sheath. After the operation is completed there is a bulging of the skin in

FIG. 6.—Patient (Mrs. D——) with marked separation of the recti. The photograph is taken as the upper part of the body is being raised from the table. The physician's fist is buried in the gap between the muscles, which are contracting. In this case there was pronounced pendulous belly. As the patient lay relaxed on her back, the distance between the muscles at the level of the umbilicus measured 5½ inches.

FIG. 7.—Abdomen of patient (Mrs. D——) after operative repair. The wall is considerably reduced in size and the bulging much less prominent.

front which marks the approximation of the muscles. This will disappear in time, or in cases where it is extreme a strip of skin and fat may be removed before the incision of the skin is closed. The writer has performed fifty-one operations of this character upon the

abdominal wall since 1898. The results of the operation are usually very good. In cases where the kidney had descended very low, nephrorrhaphy was performed at the same time. In 55 per cent of the cases prolapse of the uterus was present and was treated by operative measures. In cases where the enteroptosis is marked the patient should wear a broad silk elastic binder for six or eight months after operation.

The Results of Operation on Varicose Veins.—

J. B. Blake (*Boston Medical and Surgical Journal*, Dec. 13, 1900) has made an effort to learn the outcome of cases of varicose veins operated on at the Boston City Hospital. The difficulty of tracing patients after leaving the hospital has limited his material to eleven cases. He understands by a "cure" a completely successful operation, which at the end of six months to a year enables the patient to follow his customary occupation without discomfort. The reverse of this is regarded as a failure. Of the eleven cases, seven were cured, three were relieved temporarily or partially, and one is worse than before.

The case that reports himself as worse than before operation seems to represent a type in which excision is followed by little or no improvement. The man is 63 years of age, and a street laborer by occupation. Extensive varicose veins had existed for forty years, and had been operated upon four times, once on the right and three times on the left leg. Seventeen years ago the veins in the right leg were ligated subcutaneously with silver wire at points five inches above and five inches below the knee. He has had complete relief from painful or distressing symptoms since then. The veins are still visible over the entire inside of the thigh and leg, and are large and tortuous, but the man states positively that they cause him no trouble. The left leg was subjected to a similar operation in London twenty-five years ago. It was followed by relief of symptoms for about ten years. Pain and distress began in 1893, when a second operation was performed in Boston. This consisted of a dissection and removal of about ten inches of the left saphenous vein. After leaving the hospital he was free from pain for six months, and then the symptoms recurred. In 1895 a third operation was performed, the man requesting that this operation be by tying and not cutting. Dissection, however, was made of about five inches, and the man insists that he has had pain ever since and is worse than before.

The case is an excellent illustration of the fact that size or

extent of varicose veins, regardless of their location, bears no necessary relation to the discomfort or disability of the patient. A large mass of veins may be free from distressing conditions, and a small varicosity may at times cause a patient to seek hospital treatment. Of the cases classed as partially or temporarily cured, in one the unpleasant symptoms have disappeared, but an ulcer which closed after the operation has broken out again. A second case has returned to work, but says that the leg still pains him. A third case was relieved for one year, at the end of which time the veins above and below the incision began to swell. This patient is a cook, and as soon as she is on her feet before the fire the pain commences, and it increases during the day.

As the result of his study the writer comes to the conclusion that operations for radical cure of varicose veins by dissection are not successful in every case. The conditions that are unfavorable are old age, a debilitated constitution, large size of the varicosity, and occupations which favor the development of varicose veins.

Cases which especially lend themselves to operation are those in which the disease is local, though it may be very prominent, or where it is limited to a single venous trunk. Patients in youth and middle life offer favorable conditions, especially where the development of the varicosity is due to partially removable conditions, such as flatfoot, garters, etc. Operation, even if not entirely successful, will usually relieve such complications as thrombosis, hemorrhage, and ulceration. Unsuccessful operations are followed by pain in and around the sac, general swelling and tenderness of the leg, with the development of varicosities above and below the operation scar, but not at the site of the operation itself.

Wounds of the Heart.—

L. L. Hill, in the *Medical Record* of December 15, 1900, says that wounds of the heart are to be divided into penetrating and non-penetrating, the latter opening up a cavity, the former merely penetrating the wall of the heart. The chief danger from the non-penetrating are shock and injury to a coronary artery. Ninety per cent are penetrating, the right ventricle being most frequently injured and the left auricle the least. Auricular wounds are more dangerous than ventricular, and injuries at the apex are less dangerous than those at the base. Needle puncture rarely causes hemorrhage from the ventricle, but excessive bleeding is liable to follow a like injury to an auricle. Wounds of the right heart bleed

more profusely than those of the left. When a heart wound heals there is a possibility of stretching and subsequent rupture. Such a case is reported, in which the man was discharged cured on the twenty-eighth day; a few hours afterward, while lifting a heavy body, he fell and quickly died. At the autopsy the cicatrix of the left ventricle was found ruptured. Cases are upon record in which traumatisms caused rupture of the heart without opening the pericardium. All of these cases were fatal, due to accumulation of blood in the pericardial sac, which inhibits the movements of the organ. The surgeon in all these cases should operate, opening the pericardium and thus relieving pressure. Bullets have been found embedded in the myocardium at periods varying from ten to thirty years.

A case is reported of a child eight years of age who had driven a needle two and a half inches in length into her heart. The countenance was anxious, the pulse rapid and weak, and respirations labored. The needle entered at the fifth intercostal space on the left side, and with the pulsation of the heart the needle could be seen to move under the skin. An incision was made over the needle, and it was extracted with dressing forceps. The patient made an uninterrupted recovery. Another case was that of a colored man 28 years of age, who received a stab wound in the fourth intercostal space a little to the right of the left nipple. Seen shortly after the injury, there was complete relaxation of the extremities and the pulse was hardly perceptible. The heart sounds were very indistinct, and percussion elicited increased dulness. The external hemorrhage was slight. The opening into the pericardium was enlarged, and the blood evacuated, with a marked improvement in the patient's condition. He ultimately recovered, though subsequent traumatic pericarditis supervened.

Operative intervention in heart wounds reduces the mortality from 90 to 41 per cent. In controlling the hemorrhage from a penetrating wound, nothing can replace digital pressure. Interrupted sutures are to be employed in closing a wound of the myocardium, silk being the preferable material. The needle used should be the same as that used in suturing intestines. The suture should be passed and tied during diastole. The first suture may be used to steady the heart and facilitate the passage of the others. In sewing the pericardium, either interrupted or continuous sutures may be used. If the pulse is strong and the general condition good, chloroform may be administered.

The writer gives a *résumé* of the seventeen reported cases of heart suture taken from the article of Giordano.

Asepsis as Applied to Wounds of the Eye.—

Edward Jackson, in the *Philadelphia Medical Journal* of December 15, 1900, speaks of the value of hemorrhage in preventing infection of the eye. Cocaine, which is so often used, tends to prevent hemorrhage and thus favors retention of microorganisms and their consequent development. The more profoundly styptic adrenal extract may also prove disadvantageous in the same way. Free hemorrhage irrigates the wound with an aseptic blood serum. The failure of hemorrhage to cleanse the eye leads to the necessity for drainage. The importance of this is sometimes neglected in present-day surgery, though it was fully appreciated by the older operators, whose aseptic technique was less perfect. The common belief that it is dangerous to remove an eye affected with panophthalmitis is entirely without foundation. If bad results follow, it is due to imperfect after-treatment and the common practice of packing the orbit with iodoform gauze or other absorbent material for twelve or twenty-four hours; this favors the development and retention of microorganisms and their extension to the meninges of the brain. In the removal of an eye, even if it is infected, there is less danger than leaving it *in situ*, but free drainage must be provided for.

Reference is made to the occasional report of a "successful" extraction of a foreign body by an electromagnet. The results are a more or less complete loss of vision, though the eye may be saved. The removal of a foreign body which does not include the destruction of any infection carried in with it or left along the track of the wound is certain to result in secondary inflammation, with a consequent loss of vision or the loss of the eye. In three cases, reported by Van Milligan, of magnet extraction of foreign bodies, good vision was secured by cauterizing the track of the foreign body in the eye, thus destroying all infection. Jackson has had two cases of magnet extraction of foreign bodies from the vitreous in which good vision was retained; in each instance a free incision sufficient to insure free drainage was employed.

Treatment of General Infection of the Peritoneal Cavity.—

A. B. Johnson, in the *Medical Record* of November 3, 1900, gives the history of some acute cases of appendicitis which have presented grave complications and which call for special remark. Of these, eight were cases of perforation with general purulent peritonitis, five of which were saved by opening the peritoneal cavity, followed by abundant irrigations of normal saline solution. He defines the condition "general purulent peritonitis" to be those cases in which

fluid purulent in character, not merely cloudy serum, appears at the time of operation to occupy the pelvis and the region beneath the liver, the region of the spleen, the general surface of the small intestine, and in some cases the space between the liver and the diaphragm. In none of the cases was the lesser cavity of the peritoneum explored, hence he cannot say if it was involved.

The method of operating was in all cases the same, whether infection was more or less restricted by adhesions or not. The incision was from three to four inches in length, parallel with the external oblique aponeurosis. In two cases a second incision was made upon the opposite side of the abdomen. Where the abdomen was opened there seemed to be a general infection, and the appendix was rapidly sought for and inverted. After opening the abdomen, different regions were explored, a gauze sponge being passed to the bottom of the pelvis. In cases where a purulent accumulation was found, a large glass drainage-tube was passed to the bottom of the pelvis, and through it a quantity of hot sterile solution at a temperature of 116° to 118° was allowed to flow. All infected areas were washed out in the same way. The glass drains were left *in situ* for the first twenty-four hours. In several cases in which an elevated temperature at the time of operation was noted, the thermometer showed a drop to nearly normal in a few hours. In one case the operation seemed to add greatly to shock, which had existed before the operation was undertaken. This patient died in two hours. Ordinary methods of rectal stimulation were used, and irrigation of the lower bowel with salt solution, repeated every four hours, appeared to do good in certain instances. The writer is confident that if evisceration had been practiced, removing the intestines and carefully wiping them, this patient would have died. Such a procedure is regarded as dangerous, as it places upon a patient whose strength is already reduced an additional strain.

The Treatment of Certain Chronic Abscesses by Simple Aspiration.—W. H. Bennett, in *The Lancet* of December 3, 1900, says that a surgeon who deliberately recommends the use of a treatment which is commonly considered old-fashioned or out of date may be thought either to have lost touch with the spirit of the times or to lack knowledge and resource to keep abreast with the progress of affairs. Thirty years ago the aspiration of abscesses was a very common method of treatment; this was before the days of asepsis, when large abscesses were frequently known to absorb or were said to have become inspissated. Aspiration was found to be much safer

than opening an abscess, if aseptic precautions are not taken, so that this method proved to be a great help in the management of such cases in the preaseptic era. With the advent of aseptic surgery the practice of opening abscesses properly and draining them thoroughly superseded the older method of aspiration. The latter method was sometimes followed by untoward results, but this was due to the want of care in cleansing the needle, which was followed by an infection of the abscess cavity.

Modern technique has made the method of aspiration much safer than it was. The author does not recommend aspiration as a general treatment for abscess, but it is especially valuable in those connected with tuberculous bone disease. In carrying it out, absolute cleanliness must be observed in the preparation of the parts, and of the instruments. After this the essential points are: (1) to be careful to cease to draw the abscess contents the moment blood shows itself in them; and (2) not to let the abscess regain more than half its former size before aspirating again. This applies not only to the original tapping, but also to the recurrent ones. The more slowly the fluid is withdrawn, the better. The method is worthy of more extended application in those cases in which the treatment by incision and scraping are, from the circumstances of the patient, difficult to carry out, if not actually dangerous. In many cases aspiration treatment can be adopted without interfering with the patient's ordinary vocation for a single day, an advantage the importance of which, in some cases, can hardly be overrated.

Traumatic Rupture of Adhesions in Acute Appendicitis, with Hemorrhage.—

L. J. Ladinski, in the *Medical Record* of December 15, 1900, reports the case of a boy of 11½ years of age, who complained of abdominal cramps. On the same day he fell with some force a distance of about three feet. This was followed by severe pains in the abdomen, nausea, and vomiting. The following day he was lying in bed with legs drawn up and moaning constantly; the face was pale, anxious, and drawn; the breathing heavy; pulse small, hard, and occasionally irregular; the temperature was 101° F. The abdomen was painful and tender. The urine was normal, and there had been movements of the bowels. The following morning the patient was worse, the pulse reaching 140 and the temperature 104°. The breathing was rapid and shallow, and there was general cyanosis. The abdomen was tympanitic in its upper part, and there was evidence of fluid in the peritoneal cavity.

The boy was transferred to the hospital, where an operation was undertaken. Upon opening the peritoneal cavity it was found to be filled with blood. The appendix was sought for, and was found to be the site of the hemorrhage. This structure, which was unusually long, was doubled up like the letter U, being held in that position by the adherent mesoappendix, and it lay in front of and to the inner side of the cæcum, to which it was attached by recent adhesions. The entire appendicial region was injected and congested. The mesoappendix was ligated, and the appendix separated from the adhesions and removed; the blood and clots were wiped away, and the peritoneal cavity was washed out with saline solution and the wound closed. The following day the temperature dropped to normal, and the boy made an uneventful recovery. The rupture of the mesoappendix is attributed to the fall, and the sepsis which followed it as due to the appendicitis.

Nitrous Oxide as an Auxiliary to Ether and Chloroform Anesthesia.—

D. H. Galloway, in the *Chicago Medical Recorder* for December, 1900, says that nitrous oxide as a preliminary to ether anesthesia is one of the most important improvements in the administration of anesthetics. In using the two anesthetics, the nitrous oxide is first employed, and when unconsciousness is produced it is slowly substituted by the ether. The advantages claimed for it are that in the majority of patients it produces no unpleasant sensations; the time required to produce unconsciousness is from thirty to sixty seconds, and in the majority of cases the patient is ready for operation in from two to five minutes; very much less ether is required for a given length of operation, consequently recovery is more rapid, due to the smaller quantity of ether given.

THERAPEUTICS.

The Treatment of Influenza in Adults.—

R. W. Wilcox, in the *Medical News* of December 15, 1900, says the theoretical treatment should consist of remedies which antidote the infection. Since the infectious process is of short duration and one attack does not confer immunity, it is not likely that repeated vaccination will ever succeed in aborting the condition or in mitigating the attack. For the purposes of treatment, the cases naturally divide themselves into three groups: (1) in which the respiratory system is largely affected; (2) in which the gastrointestinal system

is mostly involved; (3) in which the neuromuscular system is especially attacked. The first is much the largest division.

It is of diagnostic importance in influenza to recognize the fact that the systemic disturbance is out of all proportion to the extent and severity of the physical signs; hence it is important that local treatment be instituted from the very beginning. The temperature is of comparatively little moment, and is most efficiently lowered by the application of an ice-water coil over the heart. Pain may be relieved by the use of morphine, but unless urgently indicated it should not be employed, because of its effects upon the bowels and the secretions. Free expectoration should be encouraged by methods which do not disturb the heart. The best remedy for this purpose is ammonium carbonate in from five- to ten-grain doses, given in two ounces of milk as frequently as may be required. It will relieve unnecessary cough, a great deal of the chest depression, as well as improve the heart's action. This treatment may, after a few days, cause some disturbance of the stomach. The irritation of the throat and nose is best relieved by sprays of ten drops of eucalyptol or five or ten grains of menthol to the ounce of alboline. In cases in which the ammonium carbonote is not well borne, strychnine may be employed. Alcohol should not be used excepting in cases that have been accustomed to it. Generally the patient is better without the alcohol, and the more the depressant expectorants and the coal-tar products, as well as poultices and hot applications, are neglected, the better for the patient.

In the gastrointestinal form, the bowels should be thoroughly evacuated by calomel in small doses frequently repeated. Intestinal antiseptics should be employed, such as the organic bismuth salts. High intestinal irrigations do much in the elimination of a toxin, not only by the bowels, but also by the kidneys.

In the neuromuscular type, the writer has had very few good results from the use of quinine. In these cases especially there is a temptation to relieve the headaches and muscular pain by the use of coal-tar products, but if used they should be carefully employed, combined with salicylic acid. Phenacetine or acetanilid is the best form, and should be combined with citrate of caffeine to avoid the depressant effect upon the heart. In the writer's experience, headaches and backaches of influenza have been relieved by gelsemium, which should be pushed until slight ptosis appears.

Elimination should be especially provided for. As a rule constipation is not common, and there is frequently diarrhea; when the latter occurs the symptom is not to be treated. Warm baths relieve muscular pains, and when accompanied by friction keep the skin in

good condition and add much to the comfort of the patient. For urinary insufficiency no better remedy can be found than continuous enteroclysis with decinormal saline solutions at a temperature of 110° F. This is not only a renal eliminant, but has a marked stimulating effect upon the heart.

Lupus Cured by the Roentgen Rays.—

W. A. Pusey, in the *Chicago Medical Recorder* for December, 1900, reports the case of a woman 38 years of age with an extensive

FIG. 1.

lupus of the chin, the lower part of the cheek, extending down upon the neck. The appearances when she first came under observation are shown in Fig. 1.

The ulcerations were of the typical flabby, indolent sort, with reddish-brown crusts. The scars were thick, band-like, red, and very disfiguring; those under the chin were sufficient to materially interfere with the motion of the jaw. The lupus showed the greatest activity around the left angle of the mouth. The ulcers

FIG. 2.

involved the mucous membranes of the lips, but no lesions were found within the oral cavity. The disease began four years before in an innocent-looking ulcer on the neck, and gradually spread from

that point. There were no signs of tubercular involvement of the lungs, though the condition of the patient was poor. The treatment with the *x*-rays was begun May 8, and continued daily except Sundays until May 26, when the exposed surface showed some reaction to the rays, and the treatment was discontinued until June 4. It was then resumed, and daily applications were made until June 21, when dermatitis developed; the latter was confined to the diseased tissue. Treatment was discontinued until July 2, when it was resumed, but with intermissions of from three to four days. During this time there was gradual improvement, the remaining ulcers healing, tubercles disappearing, and the entire surface being covered with healthy scars. By the latter part of July the left side of the face showed few traces of the disease. The right side, however, which had not been so often exposed to the rays, still presented lupus nodules and open ulcers. Exposures were begun directly over this area on July 30 and continued until August 10. The lesions immediately began to improve and were soon entirely healed. The keloid-like scars had shown great improvement in flexibility, softness, and color. Since October 8 there has been no evidence of lupus.

In treating the case repeated exposures were made to rays of definite strength produced by a secondary current, the generated induction coil having a spark length of 30 centimeters. The coil was energized by a weak primary current of twelve volts and one and one-half amperes interrupted from 800 to 1000 times per minute. The exposures were from five to fifteen minutes. Adjacent surfaces were protected by lead masks. The results of the treatment are shown in a photograph taken November 10 (Fig. 2).

There is now no evidence of the disease excepting the scars. The only thick ones remaining were those which were in existence before the treatment began; the latter have become less prominent and more soft and pliable.

Venesection in Pneumonia Followed by Injection of Normal Salt Solution.—

William Porter, in the *Philadelphia Medical Journal* of December 15, 1900, says that venesection should be followed by the injection of normal salt solution in the treatment of pneumonia. The abstraction of blood relieves the right side of the heart, and at the same time gets rid of a certain amount of toxin, and the salt solution increases the pulmonary circulation and the oxygen-carrying power of the blood. The treatment is especially applicable to the

lobar form of pneumonia. The writer's deductions are so far largely theoretical, though the treatment has been applied in a sufficient number of cases in the City Hospital in St. Louis to show that it is worthy of more extended study. Bleeding is commonly performed as soon as the diagnosis is established, which is usually within four days of the initial lesion and sometimes earlier. The amount of blood abstracted is not large, but this is repeated in case the symptoms are urgent; usually from eight to twelve ounces will give relief in the average case. The salt solution is injected subcutaneously, and it is believed that this is the preferable method, because the effects are slower; in an urgent case he would not hesitate at transfusion.

The solution employed is a modification of Jennings's, in which the potassium chlorate is lessened and the amount of sodium chloride increased. There is also a smaller amount of the phosphate. The following formula is used:

Sodium chloride	30 grains.
Potassium chlorate	60 grains.
Sodium sulphate	60 grains.
Sodium phosphate	40 grains.
Sodium carbonate	60 grains.
Distilled water, q. s. ad	6 fluidounces.

One part of this solution in 60 of distilled water.

The writer advances this method as an addition to our ordinary means of treating pneumonia, which must not be neglected. Care must be taken to favor elimination by the skin, bowels, and kidneys, and above all the heart must be supported. Oxygen is a valuable remedy, and its favorable effects are greatly enhanced by the venesection and the saline solutions.

The Action of Heroin.—

Barnard Lazarus, in the *Boston Medical and Surgical Journal* of December 13, 1900, says that the action of heroin upon animals has shown a diminution in the number of respirations, with an augmentation of the volume of inspired air and increase in the force of expiration. A large number of observers have noted the same phenomena in human beings. While heroin acts as a sedative in conditions of irritation, its action upon the respiratory centers is that of a stimulant. The writer has used it extensively, and has found that it never depressed the heart or circulation. It has distinct analgesic properties, and it has been employed in the treatment of neuralgias.

Heroin is insoluble in water, but this is not true of the salt formed with hydrochloric acid. This dissolves readily, and may be

used hypodermically. The hydrochloride is identical in its action with heroin. In all, the writer has employed the drug in thirty-eight cases in hospital practice, and fourteen in private practice. These have included cases of pulmonary tuberculosis, bronchitis, asthma, pneumonia, laryngitis, coryza, rhinitis, and intercostal neuralgia. Pain, cough, and dyspnea disappear in from one to five days. Of the fifty-two cases, nausea and giddiness were noted in only two, and in these after the administration of one-sixth grain. These unpleasant symptoms disappeared after the dose was reduced to one-twelfth grain. In one case it produced gastric disturbance similar to morphine when given on an empty stomach, but this was not observed when it was administered after meals. In three cases it caused constipation. From the experience of the writer, it would be safe to draw the conclusion that in the majority of cases in which untoward effects are experienced, the dose is too large; while many patients can take one-sixth grain, others cannot tolerate that quantity, and it is necessary to reduce it to one-twelfth. It is especially valuable in pulmonary affections accompanied by coughs, and it is an admirable antispasmodic in asthma and whooping-cough.

Guaiacol in Painful Urination.—

Jesse Hawes, in the *Journal of the American Medical Association* of December 29, 1900, calls attention to the fact that painful and frequent urination is frequently due to inflammatory conditions at the neck of the bladder, particularly in the membranous and prostatic portions of the urethra. These cases are generally classed under the term irritable bladder, but in them we have no cystitis, nor is there evidence of involvement of the mucous membrane of the bladder. Often such cases present a history of previous gonorrhea, or there may be disease of the prostate, stricture, or other trouble with the urethra. In cases of enlarged prostate the remedy is comparatively valueless, as it is in those in which there is an actual disease of the bladder. In cases where the irritation is confined to the deeper urethra, guaiacol will be found to be exceedingly valuable. It should be always applied through a urethral speculum, the instrument being introduced into the deepest part of the urethra and the mucous membrane carefully dried. A pledget of cotton on an applicator is used, with just sufficient of the drug to cover the surface, but not to fill the urethra or run into the deeper parts. The application is followed by a slight local reaction, usually less than with comparatively strong applications of nitrate of silver; sometimes there is tumefaction, which passes off in a few hours. The appli-

cation is a local anesthetic, and is followed by almost immediate disappearance of the symptoms of irritable bladder; and if it is persisted in for a sufficient length of time, a cure frequently results. He insists that the treatment is only useful in certain limited cases in which the irritation has its starting-point in the deep urethra.

Chloralamid.—

S. V. Clevenger, in the *Medical News* of December 8, 1900, says that chloralamid is far superior to the bromides, chloral hydrate, sulphonal, or trional as a hypnotic. He claims that it is very useful in the neuralgias and in the distressing wakefulness of neurasthenia. In cases undergoing treatment for alcohol and drug habits it will prove to be very valuable. It is not useful in mania or paretic dementia, but is especially useful in the psychoses accompanied by depression. An elixir may be made according to the following formula:

Chloralamid	2 drachms.
Alcohol	5.0 Cc.
Aromatic tincture	5.4 Cc.
Glycerin	15.0 Cc.
Water	to make 30.0 Cc.

Such an elixir contains about thirty grains to the fluidounce. Chloralamid is decomposed by alkalies and heat, if greater than 140° F. The drug is always best given in solution, and the slightly bitter taste is hardly worth disguising. A useful formula is the following:

Chloralamid	2 drachms.
Whiskey	1 ounce.
Raspberry syrup	1 ounce.

Dose, one-half teaspoonful.

An enema of chloralamid may be made according to the following formula:

Chloralamid	45 grains.
Muriatic acid	2 drops.
Alcohol	15 drops.
Water	3 ounces.

The usual dose of chloralamid is from fifty to sixty grains one-half hour before bedtime.

Trichloracetic Acid.—

D. T. Huston, in the *Therapeutic Gazette* of December 15, 1900, says that trichloracetic acid has a specific gravity of 1.617, and is readily soluble in water, ether, or alcohol. It is formed by the

action of chlorine upon glacial acetic acid, and occurs in rhombic crystals. It is stimulating, caustic, astringent, and hemostatic. It is especially useful in the treatment of chancroids and other persistent ulcerations which require an active escharotic. Its advantages over other caustics, such as carbolic acid, nitric acid, acetic acid, and silver nitrate, are that it does not cause an inflammation, pain is not so marked, and the destruction of the surrounding healthy tissue is less. In treating chancroids the acid should be applied in a five-per-cent solution. The ulcer is first cleaned thoroughly with hydrogen peroxide and then swabbed with the acid. There is very little pain, and the surface of the ulcer immediately becomes white. A powder is then used.

This treatment has proven very useful in simple, varicose, and syphilitic leg ulcers in connection with strapping and an antiseptic dusting powder. The ulcers are first cleansed with a bichloride solution and then sprayed with hydrogen peroxide. Then the acid is applied in a five-per-cent solution and powder dusted over the surface of the ulcer, which is either strapped or treated with a dry dusting powder. There is a decided increase in the amount of discharge, and the granulations take on a healthy appearance. Some pain is experienced after the use of trichloracetic acid, and it begins from a half-hour to an hour after the application and lasts about an hour. In no case was the pain severe enough to interfere with the daily duties.

The Nitrite Treatment in Syphilis.—

William Browning, in the *Medical News* of December 29, 1900, in writing upon this subject, especially directs attention to the title of the article, which refers to the use of the nitrites *in syphilis*, and it is distinctly not a treatment *of syphilis*. Syphilis of the tissues commonly has its origin in the vascular system, and the effect of the nitrites is to dilate the peripheral arterioles and thus enhance the effective action of antisyphilitic treatment. It is especially useful in all cases in which syphilis is thought to involve the arterioles of the central nervous system, and in those threatening cases in which the well marked forerunners of a cerebral hemorrhage are present. It has proven very useful in spinal disorders, the so-called parasyphilitic affections of the cord, if employed early, before extensive degeneration is set up.

The administration of the nitrites causes more or less unpleasant disturbance of the stomach and a feeling of fulness and pressure in the head. This is true no matter what proportion is employed.

Some writers have used the nitrites hypodermically, but for the purpose of maintaining a fairly constant dilatation of the arteries they must be given by the mouth and in frequently repeated doses. The nitroglycerin causes less disturbance of the stomach than does the nitrite of sodium, or even the tetranitrate of erythrol. The latter drug has a slower and more lasting effect, beginning within a half-hour after the dose is ingested, and continuing for several hours.

Mercurol as an Antiseptic in the Nose and Ear.—

R. Lake, in *The Lancet* of December 15, 1900, speaks of mercurol in the treatment of chronic suppurations of the ear. He has not kept close count of these cases, because the probability of mercurol being found largely superior to other antiseptics is not great. This is chiefly on account of mechanical obstructions preventing the antiseptics reaching the part affected. In acute suppurative otitis the conditions are very different; he has used it in three cases immediately after incising the membrane. The three cases were all cured within ten days, the most rapid recovery taking place within four days. The mechanical difficulties of bringing the remedy in direct contact with the infected area in chronic suppurations make it impossible to furnish any valuable deductions as to its efficiency in these conditions, but his general impression is that mercurol is the least irritating efficient antiseptic with which he is acquainted, it being possessed of properties which highly commend it, especially as a lotion for the irrigation of cavities such as muscular sinuses.

Solutions of mercurol do not keep well, and in order to obtain the most efficient action they should be freshly made. A week after the solution is made is as long as it may be used with safety.

OBSTETRICS, GYNECOLOGY, AND PEDIATRICS.

Myositis Ossificans Progressiva.—

Christopher Graham (*St. Paul Medical Journal*, January, 1900) reports the case of a girl six years of age, of Russian parentage, the fourth of a family of eight children, all well developed. The family history was negative. The patient was thought to be in perfect health until two years ago, at which time a small lump the size of a hazelnut was noticed between the shoulders; there was no pain until within the last three or four months. The stiffness, which was so apparent at the time the child came under observation, had

been evident for a year, and was first noticed in the middle of the vertebral column. The child walked easily, but with a peculiar rigidity of carriage, the head bent forward, giving an appearance of shyness rather than a deformity. She was rather irritable, had a

fair appetite, and the nutrition in the lower part of the body was good. There was no history of an inflammatory stage, and the process at the time the child was first seen was advanced, involving most of the trunk and muscles. There was no motion of the verte-

bral column save a slight rotary motion of the head. The motion of the arms is limited, especially at the shoulders, the arm and forearm likewise being involved. A glance at the child's back shows two prominent tubercles upon the vertebral column, one in the mid-dorsal, the other about the seventh cervical; these, with the stooping posture, give an appearance something like Pott's disease. The latissimus dorsi form almost a solid plate from their origin to where they cross the scapula. At this point, on the left side, a third tubercle is seen. The left latissimus is more involved than the right; from the crest of the ilium a bony ridge is formed extending along the muscular and tendinous portions. The right latissimus shows the same change, but in a less degree. The right trapezius presents several small ridges and tubercles, and forms a nearly solid bony plate. The left trapezius is less advanced. The ligamentum nuchæ is a solid band throughout. The left scapula is bound solidly to the body; the right has slight motion. The whole back is as solid as a metal plate, not admitting of the slightest motion. Both pectoral muscles are involved, the right to a much less degree. The left sternocleidomastoid muscle is almost completely ossified, the right being in about the same condition. The upper portion of the left biceps is involved, the right showing degeneration of the entire muscle. The right external oblique along the line of the linea semilunaris is ossified, swinging loosely, and might be easily mistaken for a rib separated from its attachments.

Hypertrophy of the Thymus in Leucocythemia.—

M. Morizard and M. Ulmann, in *Archives de Médecine des Enfants* for December, 1900, say that the pathology of the thymus is still but little known, but from its situation and relation to important organs it merits further study. In the fetus, and in the new-born, the thymus may be the seat of hemorrhage and intense congestion. Inflammation of the organ is found in syphilis, but it is rarely affected in tuberculosis. Primary sarcoma and carcinoma of this structure have been noted. In leucocythemia the thymus may be increased in volume.

The case of a child five years of age is reported, which entered the hospital January 24, 1899. There was no hereditary tendency to the disease, and it was impossible to fix the date of the beginning of the malady. About ten days before admission the parents observed that the respiration of the child was somewhat embarrassed, and the face was slightly cyanotic. Upon admission, all of these symptoms were pronounced; the nails were cyanotic, and the respiration

laborious and noisy. Multiple enlargements of the lymphatics were found, presenting all the characteristic appearances of a lymphatic leukemia. The liver was increased in volume. The urine was normal. The temperature ranged from normal to one or two degrees above. The examination of the blood confirmed the diagnosis, the red blood-corpuscles numbering 1,254,400, and the white corpuscles 54,250, the proportion being one white corpuscle to twenty-three red. Death took place in a few days, and the autopsy showed the ordinary appearances found in these cases. The thymus, spleen, and the lymphatic glands were found infiltrated by the same character of lymphoid tissue, formed of an abundant reticulum of fibers containing small lymphocytes. The thymus constituted a veritable mediastinal tumor extending from the thyroid body to the pericardium. It weighed 111 grammes, and it was hard and elastic. The gland was of sufficient size to cause the embarrassment of the respiration which was noted.

The thymus is completely developed at the time of birth, and it attains its largest dimensions during the second year, from which time it begins to diminish, and at the time of puberty has completely disappeared. A noteworthy fact in this case was that the thymus was completely altered in its histological structure. The corpuscles of Hassal had almost entirely disappeared, the gland being occupied by a connective tissue containing white corpuscles, occasional eosinophilic corpuscles, and occasional vacuolated cells; in a word, presenting the structure of an ordinary lymphatic gland.

Leucocythemia is a rare disease in infancy, but several cases have been reported, in some of which hypertrophy of the thymus has been found.

Cæsarian Section and Placenta Previa.—

F. D. Donohue, in the *Boston Medical and Surgical Journal* of December 6, 1900, says that placenta previa is one of the most fatal conditions with which the obstetrician has to deal, and in modern obstetrical practice shows a death-rate, both fetal and maternal, greater than that of any obstetric complication. Lawson Tait, realizing the singular fatality of this complication, advises the removal of the uterus as the only safe method of treating it. In dealing with this complication he dismisses the induction of premature labor before the seventh month, as it involves the certain destruction of the child's life. A rupture of the membranes followed by actual delivery, or delivery by forceps, is useful only in cases of marginal or lateral placenta where good pains are present and the os dilated. It

is not, however, adapted to cases of complete previa. Manual dilatation followed by version, the method commonly advised by English and American obstetricians, has shown a steadily decreasing mortality; this lowered mortality has been obtained at the expense of the fetus.

Cæsarian section for this condition was recommended as long ago as 1892. Bernays in 1894 performed the operation upon a patient with placenta previa who was much exhausted by loss of blood. The mother recovered, but the child died of asphyxia in ten hours. A justification for Cæsarian section is found in the success which has attended this operation both in saving the life of the mother and of the child. Notwithstanding the very favorable results in Cæsarian section, it is too radical in all cases of placenta previa, as some of them do well under conservative treatment. A certain class of cases, especially those of complete previa, particularly in primiparæ or those with a rigid os, contracted pelves, or malpositions, are the ones in which this operation should be employed.

The writer reports the case of a woman 40 years of age. Six days before the expected confinement there was a sharp hemorrhage lasting two hours. Six days later the attending physician made a diagnosis of placenta previa. At this time there was a flow accompanied by pains. Later in the day the hemorrhage recurred, and at 5 P.M. the patient was found in collapse. On examination the os was found to be high in the pelvis, extremely rigid, and only slightly dilated; the patient's temperature was 99.4° and pulse 140. The usual Cæsarian operation was performed, the operation consuming forty-five minutes. The patient and child made a good recovery, and the patient left her bed on the twenty-first day.

Chronic Enlargement of the Spleen in Infancy.—

J. R. Morse, in the *Annals of Gynecology and Pediatry* for December, 1900, says that a chronic splenic tumor is much more common in infancy than in later years, occurring not only in the same conditions as in adults, but in infants under circumstances in which the spleen does not enlarge in adults. All forms of anemia in infancy, whether primary or secondary, may be associated with enlargement of the spleen; the enlargement is usually greater in the more severe anemias, but it is often marked in those that are comparatively slight. The presence or the absence of leucocytosis in connection with the anemia seems to have no direct connection with the size of the spleen, the leucocytosis being sometimes marked when the spleen is not enlarged, and wanting when the size of the spleen is

much increased. These varying relations render the terms splenic anemia and pseudoleukemia of comparatively little importance in infancy. It is far better not to give such conditions any special names, but to consider them merely as variations of secondary anemia.

In speaking of the termination of these cases of enlarged spleen in infancy, the writer says that in one case of anemia in which the spleen reached nearly to the umbilicus, it disappeared under the ribs in three months. In another case in which it nearly filled the left half of the abdomen and in which the diagnosis of pernicious anemia was made by several physicians, it was just palpable ten months later. The blood was then normal in every way. In his experience the diminution in size of the spleen in rickets after the relief from the disturbed nutrition is equally rapid. His experience with hereditary syphilis has not been sufficient to warrant a definite conclusion, but he is inclined to think that in this disease the enlargement usually disappears under treatment.

Koplik's Sign in the Diagnosis of Measles.—

J. J. Cotter, in the *Archives of Pediatrics* for December, 1900, reports on this sign in 187 cases of measles. The material was analyzed in reference to whether the spots appear regularly on the buccal and labial mucous membranes; whether they appear before any other strong diagnostic feature of the disease; and to estimate their value in ordinary diagnosis and for the purpose of preventing wide-spread infection among the aggregations of children. Of the 187 cases, Koplik's spots were positive in 169, negative in eight, and doubtful in ten. The less vigorous children and those suffering from constitutional taint were found to present less typical spots. Two of the eight cases, however, which did not show this sign at all during the course of the disease, were free from constitutional disorders. The ten doubtful cases included those admitted to the hospital in later stages of the disease and those who presented signs not admitting of diagnosis, either positively or negatively. As to the time when the spots appeared, they were coincident with fever in ninety-nine, and with fever and a skin eruption in seventy-eight cases. In fifty-four cases the spots were noted one day before eruption, in twenty-five cases two days before, in four cases three days before, in three cases four days before, in two cases five days before, and in two cases one day after the eruption. They were present in one case in which there was no skin eruption. Of the 187 cases, not a single one presented Koplik's spots as the only evidence of the

disease which was to follow; hence it was impossible to isolate a single case on the strength of the spots alone. They were not found in other diseases, and hence are of very great value in differentiating measles from other affections.

What is Normal Menstruation?—

George J. Engelmann, in the *New York Medical Journal* of December 8, 1900, asks this question. The menstrual period proper should include the entire period of disturbed equilibrium, but usage has confined it to the period of hemorrhagic flow. The material which he has analyzed includes five thousand cases from high and normal schools, from college, and from department stores, of girls between the ages of 15 and 26 years, the majority being between 18 and 22, in rather better than average health.

Recurrence in regular cycles of twenty-eight days was found to be only true of 31 per cent, the larger number, 45 per cent, being retarded, and 24 per cent recurring in less than twenty-eight days. A wide range in some cases, between twenty-one and forty-two days, with extremes far beyond these limits, most frequently in a multiple of seven, was noted. Fully 50 per cent had some irregularity, varying from two to seven days, and but rarely over three weeks. This irregularity increased distinctly by at least ten per cent as duties became more stringent and application mentally and physically more intense. Mental exertion shortens the interval; physical strain, if not too great, tends to prolong it. The average duration varied in different groups from 4.4 to 5.5 days. Suffering was present in an average of 67 per cent; in between 11 and 18 per cent there was severe suffering. A marked difference was found between school and college girls and those working in department stores, the latter showing as high as 83 per cent having pain, varying somewhat with the character of the work.

Lumbricoid Worms Giving the Symptoms of Appendicitis.—

Catherine Arboré-Rally, in the *Archives de Médecine des Enfants* for December, 1900, says the phenomena caused by *Ascaris lumbricoides* in the intestine of an infant have apparently been exaggerated by the ancient writers. She reports a case in which very grave symptoms were caused in an infant by two lumbricoids, and for a time it was thought that surgical intervention would be necessary. The patient was ten years of age and had been sick for three days. The trouble began with pain in the abdomen and constipation. For the latter a dose of castor oil was given. The following day

the pain became more intense and there was vomiting. The pulse on the third day increased in frequency, the vomiting became very severe, and the pain in the abdomen violent. The abdomen was tympanitic, with hyperesthesia of the cutaneous surface, and consequently palpation was difficult. Tenderness was especially marked at McBurney's point, where a distinct resistance was felt, though no tumor could be made out. The symptoms later became so severe that it was feared general peritonitis had set in, so that no operation was undertaken, but expectant treatment was employed. After an enema of 600 grammes of artificial serum, there was passed a lumbricoid worm 16 centimeters in length, and later a second worm. After this the child appeared better, vomiting ceased, and the pain became less severe. The following day the right iliac fossa was still tender, and there was some distention of the abdomen, which symptoms disappeared shortly after a large enema.

The case is regarded as of especial interest from the fact that a grave abdominal lesion was indicated, when no more serious cause was found than an intestinal parasite.

FORENSIC MEDICINE.

Definition of the Word "Operation."—

In the *Philadelphia Medical Journal* of December 22, 1900, editorial mention is made of the varying signification attached to this word. A recent medicolegal case called attention to some of these inaccuracies, and the journal in question says that in consulting a large number of lexicons noteworthy differences and mistakes were found. All but one or two incorporate one or more errors, and there is one that gathers and indorses all of the following five inaccuracies:

1. An operation is performed by an authorized surgeon or by a legalized practitioner of medicine. An instant's attention shows that an operation may be performed by a non-medical person.

2. It is performed by one person upon another, who is the patient. But, as we all know, an operation may be performed by and upon oneself.

3. It is performed by means of surgical instruments. Operations, however, are performed every day without instruments.

4. It is manual. But every surgeon knows of operations done without the use of the hands.

5. It is with the object of relieving disease or restoring health.

And yet in cosmetic operations, in vaccination, in criminal abortion, and in malingering, the object is not the restoration of health.

It is proposed to define an operation as *a surgical act.* The distinctive difference between all other therapeutic measures and surgical ones resides in the word "mechanic." A surgeon is one who works with the hands, though a surgical act may be carried out by other means than the hands. The nature of the means is contradistinctive as to other means essentially chemic or physiologic.

This definition of operation calls attention to the extreme looseness with which words of this sort are used, both in statutes and in our courts of law. Some of the words in common use in medicine are quite as difficult of definition as the word operation, and medical men define them upon the witness-stand so differently as to furnish wide discrepancies for the contention of opposing counsel.

A short time since in these pages we had occasion to refer to the definition of the words "subjective" and "objective" as commonly used in courts of law, and there referred to the varying conception of these words by medical men.

"Knock-out Drops."—

We have had occasion in past issues of MEDICINE to refer to the increasing use which is made of chloral hydrate for criminal purposes, in the form of what is known as knock-out drops. The ease with which they are administered, the certainty of the results, and the comparative safety to the perpetrator, make such crimes difficult to deal with by the police. Occasionally a death results from the administration of too large a dose, and this attracts attention to the subject. So frequently has chloral hydrate been used in England that special laws have been passed, so that the mere detection of it upon a person in a solution which could reasonably be supposed to be used for criminal purposes is sufficient for a conviction. Chloral hydrate has very little taste when administered in alcoholic solutions, particularly beer, and its detection by the taste is further rendered less likely by the fact that a time is chosen when the individual is more or less under the influence of intoxicants and the sense of taste is obtunded. At this time a dose of from forty to eighty grains will render a person unconscious and quite helpless for several hours, during which time he is robbed, and the perpetrators of the crime have ample opportunity to escape. The victim upon recovering from the effect of the drug may be unconscious of anything having been administered to him, simply thinking that the effects are due to the excessive indulgence in liquor.

In the *Medical Record* of December 22, 1900, the *Sunday Sun* of New York is quoted as stating that there are at least fifty stores in that city in which chloral hydrate may be purchased without a physician's prescription. Some of the druggists know the use to which it is to be put at the time they sell it, but they charge two and three dollars for a one-ounce bottle of the mixture, and so long as they get a good price for it they ask no questions. There are two drug stores in Manhattan that are thriving on the sale of chloral hydrate.

Negligence on the Part of a Practitioner.—

Dudley S. Reynolds, in the *New York Medical Journal* of November 10, 1900, in an article on what the law requires of a surgeon, quotes an interesting decision of an Ohio court. A leading ophthalmic surgeon was consulted for an injury to the eye. He stated his opinion that it should at once be removed to prevent the danger of losing the sight of the other eye. The mother of the injured youth begged to have something done for the relief of the pain. The surgeon, good-naturedly yielding, prescribed an anodyne, and at each subsequent visit renewed his warning as to the well eye. In a few weeks the other eye became dim, and the patient was taken to a hospital, where another surgeon enucleated the injured eye, but not in time to save its fellow. The judge decided that the surgeon was liable for failing to do that which he himself said was necessary for the protection of the patient's sight, and the jury assessed the damages at the sum of fifteen thousand dollars.

It is difficult to see the justice of the foregoing decision, but it doubtless would have turned upon the evidence as to what the surgeon said, and the force with which the importance of enucleation was stated to the mother and patient. How far ought a surgeon to go in expostulating or urging a patient to a certain procedure that he declines to take? It is clearly impossible for a surgeon to force a patient to submit to operation, be it never so urgent, but he always has the alternative of immediately retiring from the case as soon as his directions are not obeyed. Clearly this is what the surgeon in the above case should have done.

Water in the Lungs of Persons Drowned.—

W. D. Harris, in the *Cincinnati Lancet-Clinic* of December 22, 1900, says this question arose in connection with a case of suspected homicide, the body having been found in a lake, where it had presumably been placed after the crime was committed. The following experiment was made to determine the possibility of water entering

the lungs after death: A subject dead with uremia was placed in a vat and completely submerged in water. Twenty-four hours later the chest was opened, and after ligation of the trachea the lungs were carefully removed and examined. Upon slitting the trachea and larger divisions of the bronchi, ten grammes of watery mucus was obtained.

A number of examinations of the lungs of persons dead of drowning have been made since the above experiment, with special reference to this feature, and the conditions were similar to those found in this case, with the exception that in some instances the lungs contained less fluid than did those of the subject of the experiment. From the above the author concludes that the lungs of those drowned do not contain water, nor do those dead before being placed in water. From this test alone it is not possible to say whether the subject was dead or alive when placed in the water. Other conditions about the body may determine this fact for us, but the mere absence of fluid is of no value.

Recovery from a Large Dose of Morphine and Atropine.—

H. R. Goodrich, in the *Philadelphia Medical Journal* of November 17, 1900, reports the case of a middle-aged man, in good health, who passed through a period of business and social reverses, during which period he attempted to end his life. He had been suffering from insomnia for a few weeks before, and to relieve this would occasionally take morphine combined with atropine, but was by no means a habitual user of the drug. At the crisis of his depression he dissolved eighty-one tablets, each containing $\frac{1}{4}$ grain of morphine and $\frac{1}{150}$ grain of atropine sulphate, in a small glass of water, and drank the whole quantity. He remembered nothing for the next forty-eight hours, when he awoke with no worse effects than a condition of deep hebetude and pronounced soreness and pain when attempting to move, the latter resulting from lying so long in one position. The tablets contained twenty grains of morphine and nearly one-half grain of atropine. The fact that recovery took place is believed to have been chiefly due to the antagonistic properties of the two drugs.

A Death from the Roentgen Ray.—

A case is reported in *The Lancet* for December, 1900, of a woman 68 years old who met with an accident to her left hip. It was thought at the time that no fracture existed, but later the medical attendant was in great doubt as to whether there was a fracture or

not. With the help of a local photographer two exposures were made, one of thirty-five minutes and the other of forty-five minutes, each hip being taken separately. A third exposure was made fourteen days later of forty-five minutes, in which the tube was placed in the middle line so as to give an outline of both hips. On the first occasion the part of the body exposed was covered with clothing, but on the second it was not. Seven days after the second exposure an eruption developed in the left lower abdominal region, which later ulcerated. On July 7 she was found to be suffering from a sloughing wound about three by three and one-half inches. Death, in the opinion of the attending physician, was due to two injuries—the fracture of the thigh and the action of the Roentgen rays. Death took place about seven months after the last exposure to the rays. At the necropsy the wound had lost its slough, but there was little sign of repair.

Forgotten Identity.—

In the *Boston Medical and Surgical Journal* of October 11, 1900, there is described a case that is under treatment at the White Plains Hospital, Westchester county, New York, of a man who has forgotten his indentity as the result of a stroke of lightning. Dr. H. E. Schmidt has examined the man and pronounces it a case without a parallel. The patient was found one night in July after a severe electric storm near the tracks of the Harlem Railroad. The entire left side was paralyzed. When questioned as to his identity he appeared much annoyed that he could not give an intelligent reply. During the night there was twitching of the various muscles, and on the following day, if any part of the body was touched, the patient would, after a delay of five or ten seconds, put his hand to that part of the body and touch it in the same way; if stroked, would do the same; if slapped, would slap himself. If roused and questioned sharply, he would reply, "I—I—I." After three months he was much improved. He gradually improved in strength, the paralysis disappeared, and the muscular system was built up by a course of calisthenics. The report does not say that there was any improvement in the patient's sense of identity.

It is understood that all original communications sent to this journal are for its pages exclusively, excepting in cases where articles are published in the transactions of the Societies before which they are read, or in which an abstract appears. Articles will be illustrated. Authors will be furnished a liberal number of reprints; or, if they so elect, an honorarium will be paid for original communications.

Books for review, exchanges, and all matters relating to the editorial management, should be addressed to Harold N. Moyer, M.D., 103 State St., Chicago, Ill.

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ORIGINAL ARTICLES.

PSEUDO-PHOSPHATURIA AS THE CAUSE OF A PERSISTENT URETHRITIS.

BY ALFRED SCHALEK, M.D.,

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Physiologically alkaline and earthy phosphates are present in the normal urine, passed in twenty-four hours to the amount of two to three grammes. The salts most frequently found are the amorphous phosphates of lime and the crystallized triple phosphates. Crystals of calcium phosphate are rarely encountered. The greater part of the phosphates is derived from the ingested food, while only a small portion is referable to the phosphorus, contained in the proteid molecule of the muscle, nerve cell, red blood-corpuscle, and the bone. They are thrown down occasionally in a urine of neutral or alkaline reaction. This is accounted for by the temporary diminution of uric acid, whereupon alkaline carbonates are formed, due to the ingestion of a vegetable diet, carbonated drinks, etc., or to the oxidation of tissues rich in phosphoric acid.

True phosphaturia is a pathological condition which presents itself as an excessive excretion of phosphates in the urine. It occurs in urine alkaline from fixed alkali, not containing pus, mucus, and other inflammatory products, unless in an accidental complication. In diseased conditions of the urinary tract with ammoniacal decomposition of the urine, the triple phosphates predominate, but are not considered to constitute a true phosphaturia.

This, also called by Casper[1] "essential" phosphaturia, may be found in general and local neuroses, but also often in cases in which

[1] *Deutsche Med. Wochenschrift*, No. 45, 1897.

there is no other sign of disease. The amount of phosphates may increase to nine grammes during twenty-four hours, showing a heavy, whitish deposit, which often forms in the bladder. The urethra may be clogged by it, so that the first stream of urine looks twisted and divided; its last portion is loaded heaviest with phosphates. The urine is of high specific gravity, alkaline in reaction when voided, cloudy, and upon addition of acid clears up with effervescence. The detrimental effects of true phosphaturia upon the general economy depend chiefly upon the quantity of excreted phosphates and the length of time during which this process continues. The excessive amount is eliminated principally at the expense of the nervous and muscular tissues. Usually nervous depression, neurasthenia, abnormal sensation or weariness are present. Insomnia and disorders of the gastrointestinal tract may further complicate the case. Others, again, affected with phosphaturia suffer with shooting pains in the lumbar region, frequent micturition, and dysuria; if free urination is prevented in some way, phosphatic calculi are liable to form in the kidneys or the bladder.

Another unusual complication, or rather a sequel, of an apparent phosphaturia was found in the case of which I wish to speak further on. It was a non-specific urethritis, which persisted for years in spite of all local treatment, and only subsided during the time when this anomalous feature of the urine was corrected. All modern text-books on genito-urinary diseases mention the existence of a simple non-specific urethritis, caused either by general conditions or through local, traumatic, or chemical irritation. This urethritis is usually described as being of short duration, with no serious consequence, and little importance is attached to it. The possibility of a protracted inflammation of the urethral mucous membrane caused by the irritation of an abnormal composition of the urine is rarely considered. Lithemia and oxalemia are occasionally mentioned as causes of irritation of the genito-urinary passages. The nearest resemblance to the present case was reported by Klotz,[1] in a case in which, after a cured gonorrhea, where repeated examination failed to find gonococci, phosphaturia brought on anew an inflammation of the bladder and urethra with painful and frequent micturition, and a urine full of epithelia, red blood-corpuscles and leucocytes, and a large amount of phosphates. The case which I wish to report presents the following history:

P. W——, 22 years old, contracted according to his statement a

[1] *New York Med. Wochenschrift*, October, 1899.

gonorrhea about four years ago. In spite of treatment the disease continued for a year, when a stricture was diagnosed and cut by internal urethrotomy. No improvement followed this operation. During all this time the patient noticed that his urine was cloudy when voided, and that the urethral discharge was mixed with a white sandy material, which occasionally resulted in the formation of a gritty, mortar-like crust around the orifice. Urethral injections and internal medication, used with short interruptions, gave no relief. During this time the patient lost gradually about twenty-five pounds in weight, so that when I first saw him he weighed only 110 pounds.

When the patient presented himself I found him small in stature, rather emaciated, decidedly neurasthenic, and with a sallow complexion, that became easily flushed. He complained of anorexia, indigestion, frequent micturition, and tenesmus. There was no history of syphilis or tuberculosis; his habits were temperate, and no excesses of any kind had been committed. He sought relief from the annoying, persistent discharge from the urethra.

Examination of the urethra discovered five inches from the meatus a narrowing of the canal, which a sound, size No. 15 French, passed with difficulty. The scars of the old urethrotomy were afterward seen in this location with the urethroscope. Recontraction had probably taken place. The urine was turbid in all three portions, and a heavy white sediment was visible, amounting to about one-quarter of the entire volume of urine. The reaction of the freshly voided urine was alkaline from fixed alkalies. The amount of urine passed in twenty-four hours was 1500 cubic centimeters; its specific gravity was 1020. No albumin or sugar was present. Upon addition of acetic acid, the sediment cleared up with effervescence. Microscopical examination of the deposit proved it to consist entirely of large masses of amorphous granules of calcium phosphate. The urethral discharge was repeatedly examined. Stains with Loeffler's alkaline methyl blue and Lantz's method showed polymorphonuclear leucocytes, large flat epithelia, and amorphous phosphates, but no gonococci.

The treatment consisted at first in gradual dilatation of the stricture up to 30 Charrière, which was easily accomplished in five weeks, and simultaneous irrigations of the bladder and urethra. Little attention was paid at first to the phosphaturia. In spite of the successful dilatation of the contraction and other treatment, the mucopurulent discharge continued. This was at various times examined for gonococci, with negative result.

Endoscopic examination did not reveal any conspicuous pathological changes in the urethral mucous membrane. The prostate and the seminal vesicles felt normal to the touch. At one time a strong injection of nitrate of silver caused an exacerbation of the whole process with a large increase in the number of pus cells, but without gonococci.

This prompted the conclusion that even if this urethral inflammation was of gonorrheic nature at the start, this specific cause must have long ceased to be active, and that the discharge was kept up by some other injurious agent. The coincident presence of the phosphates in such large amount led to the conclusion that it was due to their mechanical and chemical irritation. The quantitative analysis for phosphates, made twice at different times, for which work I am indebted to Dr. C. S. Woods, of Rush Medical College, gave a surprising result.

In 1550 cubic centimeters of urine, passed during twenty-four hours, the total amount of P_2O_5 was 2.26820 grammes, of which 1.95820 was alkaline and 0.310 gramme earthy phosphates. This constitutes a normal quantity, so that in spite of all clinical symptoms pointing to the diagnosis, we could not strictly speak of an essential phosphaturia. Still the persistency of the alkalinity of the urine, the constant deposition of phosphatic sediment, the presence of systemic symptoms for such a length of time, and the absence of a local cause in the genito-urinary tract, pointed to some pathological change in the general metabolism.

The treatment was now directed mainly to correct the alkalinity of the urine. The diet was carefully regulated, especially in regard to vegetables and other foods liable to produce alkalinity. Benzoic and dilute hydrochloric acids were given at first, but without noticeable effect; later on urotropin was tried, which according to Casper clears up phosphatic urine after it has been turbid from this cause for months and years, though as he says, "The rationale of the action of the urotropin is as unknown to us as the nature of phosphaturia itself. Urotropin is certainly too weak a base to have any influence upon the acidity of the urine." Neither can, in the absence of any septic process, its effect be due to its antiseptic properties.

After urotropin had been taken in doses of thirty grains per diem for three weeks, the urine finally cleared up entirely; at the same time all the symptoms of the urethritis disappeared; there was no trace of a discharge, the urine being slightly acid and perfectly transparent. But the improvement was not permanent. After an

absence of two weeks the patient returned to the office with the statement that, considering himself well, he had discontinued the medicine prescribed, and the whole trouble had returned.

In order to establish beyond a doubt the causal nexus between the presence of the phosphates and the appearance of the inflammatory symptoms (urethritis) I have since repeatedly given the urotropin treatment to the patient at intervals, with the same effect. Whenever it was withdrawn for some time the whole cycle of symptoms reappeared.

The condition present in this patient ought to be called a "pseudo-phosphaturia." In true phosphaturia we have as an essential factor a marked increase in the amount of phosphates. In our case no such excess was present, still the general symptoms are those of a true phosphaturia. This case is of further interest, as it shows the possibility of a complication of phosphaturia with a persistent urethritis extending over years.

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THE CHOICE OF OPERATION FOR STONE IN THE BLADDER.[1]

BY BYRON B. DAVIS, M.D., OMAHA, NEB.,

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The best operation for stone in the bladder is the one which most nearly answers the following conditions:

1. Has the lowest operative mortality.
2. Is followed by the smallest percentage of recurrences.
3. Most nearly restores the urinary apparatus to a normal condition.

To consider which of the recognized operations best fulfils these conditions is the object of this paper. Among American surgeons there seems a great diversity of opinion in regard to which operation to select. Some follow the lead of our English colleagues practicing in India, and some are more or less wedded to the Bigelow operation; others frankly proclaim their faith in suprapubic lithotomy, while still others preach lithotrity, but practice, for the most part, cutting operations. There is still another class who have practiced lithotrity extensively, who have been gradually induced by their own experience to limit more and more the field for lithotrity, and broaden the indications for the high operation.

It is very easy for one to be hypnotized by the statistics of the Indian surgeons. When Keegan, three years ago, published the records of over 18,000 stone cases operated on in India, showing an operative mortality from lithotrity of 3.96 per cent, from lateral lithotomy of 11.02 per cent, and from suprapubic lithotomy of 42.17 per cent, it seemed as if the last word had been spoken, and that lithotrity had gained the day by overwhelming odds. One is at once impressed with the very low mortality from lithotrity — and there are several individual operators whose mortality is considerably less than that given—and the excessively high mortality from the suprapubic operation. When it is considered that only the very serious cases, those with greatly enlarged prostates, sacculated bladders, very large and hard stones, and those suffering from severe sepsis, are subjected to suprapubic cystotomy, it ought rather to be a matter of surprise that the mortality is not higher. On the other hand, the cases subjected to lithotrity are those least complicated, the class of cases which would give a very low mortality under any operation.

[1] Read before the Western Surgical and Gynecological Association, Minneapolis, Minn., Dec. 27, 1900.

If it were possible to obtain records of an equally large number of cases in which perineal or suprapubic lithotomy had been practiced, a comparison of results would be instructive. Unfortunately, very meager information bearing on the mortality from the cutting operations is accessible. The largest series available for comparison is that of Assenfeldt, a Russian surgeon, who reports an experience of 613 operations for stone, with an operative mortality of 3.25 per cent. This gives the suprapubic operation as performed by Assenfeldt a mortality 20 per cent lower than that from lithotrity as performed by the Indian surgeons.

Another important factor in determining the best operation for stone is the question of recurrence. If two forms of operation are followed by an equal mortality, the one followed by the fewest recurrences would be the operation of choice. A quotation from Mr. Cadge's Hunterian oration delivered before the Royal College of Surgeons in 1886 is apt. He says: "Although the immediate and direct mortality of lithotrity is small, the recurrence of stone is lamentably frequent. In my own list of 133 cases there were eighteen in which recurrences one or more times took place—about one in seven. Sir Henry Thompson, with a much larger number of cases, gives about the same proportion. I am disposed, however, to infer that recurrence is more frequent than this."

In commenting on Sir Henry Thompson's and Cadge's experience, Reginald Harrison says that his own cases and those of the English surgeons, with whose work he is familiar, show about the same proportion of recurrences after lithotrity.

A reason for these frequent recurrences is not hard to find. First and foremost the conditions which lead to the formation of stone in the first place are not removed by the operation of lithotrity. In a great majority of cases microorganisms are the determining factor in the production of stone. Microorganisms, plus stagnation, will almost always result in stones being formed sooner or later. After lithotrity, if there is not much stagnation, the infection may be mitigated, but it is seldom cured. Sometimes the trauma which accompanies even the most delicate and skilful manipulations with the lithotrite causes a rapid increase of the infection, so that the intravesical conditions are made still more favorable for the early deposit of phosphatic concretions. An enlarged prostate with residual urine, with the certain coexistence of cystitis, is so uniformly followed by recurrence of stone that even the most sanguine lithotritists hesitate to employ their favorite operation in this class of cases.

Another element inherent in the Bigelow operation is the fre-

quent failure to evacuate all the fragments. Even the most expert operators admit that they can never be certain that every fragment and all the particles of sand have been removed. I believe it to be next to impossible to empty the bladder of all the fragments and sand, after crushing a stone. Small particles gain lodgment behind the prostate, in the folds of the bladder, and sometimes may be literally ground into the mucous membrane. That this opinion is not fanciful is proven by the frequency with which small fragments of stone and sand are expelled from the bladder, after lithotrity, during the act of urination. Every particle left behind which is not early cast out with the urine forms the nucleus of a new stone.

When one of the cutting operations is done, all the stones and all the fragments can easily be removed. This completely eliminates one factor which often leads to the formation of new stones. The best treatment for infection is careful, clean drainage and rest of the bladder, and this is almost constantly made use of after the high or low cutting operation. If the prostate is enlarged enough to give rise to the existence of residual urine, by performing suprapubic cystotomy the enlarged prostate can be dealt with through the suprapubic wound, and indeed the removal of the stone is only an incident in the more important matter of trimming off a portion of the middle lobe, and lowering the floor of the urethra, or enucleating masses or nodules of the lateral lobes, and thus putting the bladder in condition so that it can completely empty itself.

The method I have pursued in several cases is not original, but the results have been so entirely satisfactory that I cannot refrain from the expression of a good deal of enthusiasm on the subject. It is based upon the same general principles that guide us in the treatment of the gall-bladder after the removal of gall-stones—free drainage until all indications of infection have passed away. My first efforts in this direction were to perform suprapubic drainage. This gave rise to disappointments and delays, the patient having often to be confined a long time, and the wound often failing to heal promptly.

The method now adopted in all cases where there is any infection at all—and that means most of our cases—is first to remove the stone through a suprapubic wound, dealing with the interior of the bladder through the suprapubic opening in any manner which seems indicated. If great infection and thickening of the bladder mucous membrane are present, disinfect the interior of the bladder, touching eroded spots with a strong solution of nitrate of silver. If the

prostate needs attention, all is done that is necessary to insure proper emptying of the bladder. The next step is to close the bladder wound by means of fine catgut sutures used in the same manner as we close an opening in the bowels. One should also be careful to anchor the anterior bladder wall to the superficial structures in order to prevent the bladder falling away and leaving a large dead space just anterior to the bladder, and posterior to the recti muscles. The upper and lower extremities of the wound are carefully sutured, but a small opening is left in the middle of the incision for drainage. A wick of gauze is now carried down to the line of sutures which unite the anterior bladder wound. This prevents infiltration of urine in the space of Retzius in case the bladder wound should leak, and the urine is absorbed directly into the dressings. In only one of the cases treated in this manner has leakage through the suprapubic bladder wound occurred, and this was found to be due to plugging of the drainage with blood-clots.

After completing the toilet of the suprapubic wound, median perineal drainage is quickly established, and we have here the best kind of drainage, because it is down-hill. A very large soft-rubber catheter is introduced through the perineal buttonhole, and fastened there by means of one or two stitches. The bladder is now constantly drained into a vessel under the bed, and three to six times daily it is washed out with a saturated solution of boric acid. The suprapubic wound quickly heals, and as soon as the urine clears up and pus disappears, the drain is withdrawn, and it takes only a very few days for the perineal wound to close. Only five to seven days is needed in bed, as a rule, the average case being in condition to discharge from the hospital in twelve to twenty days.

From the facts accessible it seems only fair to conclude that:

1. The mortality of lithotrity, when all classes of cases are considered, is no lower than that of the cutting operations.

2. The patient's condition after lithotrity is often no better than before.

3. Recurrences are much more frequent after lithotrity than after the cutting operations with drainage.

4. Lithotrity is not adequate to deal with the more serious and complicated cases, and the simpler cases will most of them recover after any operation done aseptically.

TREATMENT OF SEPTIC INFECTIONS OF THE KIDNEYS, AND CYSTONEPHROSES.

BY L. L. McARTHUR, M.D., CHICAGO.

The treatment for convenience of consideration may be subdivided into (1) internal medication; (2) local applications (lavage and ureteral antiseptics); (3) surgical interference (by nephrostomy; by nephrectomy).

A few remarks relative to the use of certain well known and often abused remedies seem here appropriate. We too often hear valued drugs condemned, when in truth a careful analysis of the case shows inappropriate selection rather than inefficient action.

First, the question of alkalinity or acidity of the urine. The normal urine is, generally speaking, acid, fluctuating with the digestive processes and the nature of ingesta. Given a septic, purulent urine, with an alkaline reaction, the routinist turns to his acids without first determining whether the alkalinity in question is of bacterial origin and due to the ammonia of decomposing urea, or caused by the fixed alkalies of the foods or drink. In the former case the rational treatment would be to combine the urinary antiseptics with chemical substances eliminated from the kidneys as acids; in the latter, to diminish the alkalies ingested. As has been shown by Harris and others, the nuclei for renal calculi are practically always bacteria, the condition for the deposition of the earthy salts upon them being most favorable when the urine is alkaline from bacterial ammonia, the conditions favorable to a calculous pyelitis.

To correct ammoniacal urine, the aim should be (1) to restore the normal acidity, and (2) to check bacterial growth. The former is best aided by restoring the normal elimination of uric acid. Physiological chemists have taught us that benzoic acid in passing through the system is colligated with glycerin and eliminated from the kidneys as hippuric acid (so called because first extracted from horses' urine). Hence this is an excellent remedy for the purpose of acidifying; but alas, how many of us have thwarted all the benefit that might thus accrue by prescribing this acid combined with an alkaline base—*e.g.*, sodium benzoate, ammonium benzoate —so that when eliminated it was neutralized and inefficient. It should be given as free benzoic acid. The mineral acids are neutralized when passing into the blood and only secondarily influence the urinary reaction, while uric acid seems to be liberated as it is

eliminated through the renal epithelium and directly influences the acidity.

Bacteriologists have shown us that mycotic growth occurs best in neutral or alkaline media; hence, acidulating retards such growth. Two important exceptions, however, must be borne in mind. The gonococcus thrives in an acid urine, as does the bacillus coli communis with its congener the bacillus of Eberth; hence it will not in these instances help matters to increase the acidity.

Worthy of mention in acidulating the urine, and exceeding in value the dilute mineral acids, are salol and similar derivatives of the benzol group. Salol, let me recall, is decomposed by the alkaline fluids beyond the stomach into salicylic and carbolic acids (phenol), the salicylic radical and the carbolic being colligated in the liver into salicyluric acid and sulphocarbolic acid respectively, then finding their way into the urine; both capable of neutralizing alkaline bases, and both possessing desirable antiseptic properties.

To check bacterial growth, the most trustworthy urinary antiseptic is urotropin, a compound containing the formaldehyde radical to which it owes its efficiency. Clinical evidence continues to accumulate that it always inhibits and sometimes destroys the infective elements of the urinary tract, with the possible exception of the tubercle bacillus. Nicolaier, among the first to recommend it, says that it can be detected early in the urine by the use of bromine water, as the bibromide, an orange-yellow precipitate. There is a growing belief with some chemical basis it acts by liberating its formalin in the urine by a simplification of its molecule. It takes, for the adult, about twenty-seven hours to eliminate sixteen grains, from which an idea of the dosage can be gained, a single large morning dose (fifteen grains) being recommended.

To render the urine alkaline in reaction, as is desirable when the gonococcus or the bacillus coli commune invades the kidney, we should not use the bicarbonates of sodium and potassium because of the acidulous radical present in them militating against the very object desired, and because of the interference with the digestive processes. The neutral salts of the vegetable acids are best, since in the system they are converted into the carbonates by oxidation. The speediest method of rendering the urine alkaline is to give an enema of warm water containing five to ten grains of the carbonate of sodium or potassium to the quart. These salts are strongly alkaline and influence the blood reaction at once, with a corresponding influence on the urine.

As to the local treatment of renal infections, I can say nothing

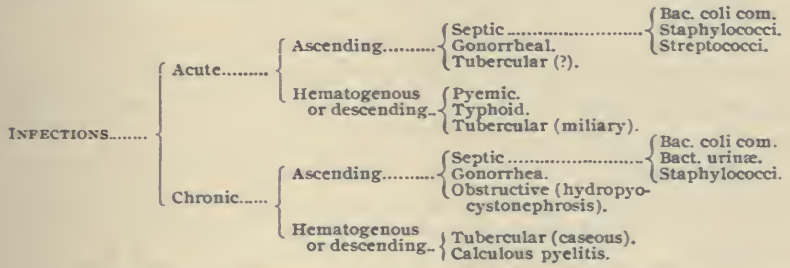
from personal knowledge, never having used lavage of the renal pelvis and ureters either with or without antiseptic remedies. I must admit that there is excellent authority for such treatment, Casper, Albarran, and Howard Kelly reporting very favorable results. A report of cases by Albarran showed all improved, but none were pronounced cured. In one case improvement from a single irrigation lasted one and one-half months! Desnos and others have seen a fatal outcome of ureteral catheterization, with the complex of symptoms which usually accompanies the so-called "urethral" fever after a similar catheterization of the ureter. In other words, the difficulties of catheterization and occasional ureteral bleeding in the most competent hands mean that the conditions are often favorable for "ureteral fever." Moreover, the chances of extending a vesical infection to the ureters, if not proven by other means to be already there, should confine this treatment to a few selected cases.

Albarran contends against the use of the ureteral catheter and lavage of kidney in febrile cases. The principal solutions recommended for this form of irrigation have been two-per-cent boric acid, sterile, sometimes following same by 1:1000 silver nitrate or lactate. In the hands of men expert in the use of the cystoscope and ureteral catheter in the male and female, and thoroughly awake to the importance of aseptic work, this means will prove an aid in the treatment of some renal infections; in my opinion the general practitioner should not be urged to use it, unless under very favorable conditions. The simple infections of the kidney are amenable to simple treatment, but when mixed infection occurs, surgical interference usually becomes imperative.

Habits established are difficult to change, and little progress seems to have been made in regard to boric solutions, though Andrews of Chicago demonstrated ten years ago that even saturated solutions of boric acid are not germicidal, and only inhibit in a very mild way their growth. Do not place much reliance on the antiseptic or germicidal value of boric solutions, but add to it, if it must be used, some additional antiseptic, such as silver lactate 1:2000, or sodium salicylate, of known value. Probably the boric solutions bear the same relative value to plain sterile water as does normal salt solution.

An intelligent application of therapeutic measures to the surgical infections necessitates a rational grouping of the various types. Procedures appropriate to one class at one stage may be wholly inadvisable to the same class at another stage. Clinically, it has

seemed to me practicable to first subdivide these infections into (1) the essentially acute, and (2) the essentially chronic infections; then as the mode of infection varies, to further subdivide them into the acute ascending and the acute descending or hematogenous; the chronic ascending and the chronic descending or hematogenous. Subdivisions based thus on both the mode of infection and duration of injurious action give us a rational line along which to direct our treatment, as well as groupings under one of which each type of renal infection may be classed; the extension by contiguity being so rare as to be ignored, or if recognized, to be regarded as a secondary outcome of some of the processes to which treatment should especially be directed.



By the term "ascending" is to be understood the extension from the urinary tract below to the pelvis of the kidney first, and the parenchyma secondarily. That extension may be by the urine itself along the mucosa, or as Bolton Bangs suggests, sometimes by the lymphatics of the ureter. By the term "descending" is to be understood all such infections as are brought to the kidney by its circulation, therefore termed hematogenous.

The acute ascending infections of the kidney are (1) the septic; (2) the gonorrheal. The former includes all those infections of the ordinary pyogenic germs, the three chief offenders being: (*a*) Bacillus coli communis; (*b*) staphylococci; (*c*) streptococci in their relative order. This type of infection in its treatment requires less radical measures than those of the more chronic variety because less destruction of renal tissue will have occurred, and conservation of renal tissue must be practiced whenever feasible. Having determined the nature of the infection by bacteriological examination, and the involvement of one or both kidneys, efforts should be made (1) to remove the source of infection; (2) destroy or inhibit the organism in question; (3) provide free exit to products of infection.

1. If the infection has been by extension from a coincident cystitis, vigorous and systematic treatment must at once be instituted,

the choice of medicaments being not of as much moment as the systematic carrying out of a rigid hygiene of the bladder. If the urine be acid, as it more frequently is in the acute types, especially so with the gonococci and bacillus coli communis, render the urine alkaline and insure the elimination from the kidneys of much fluid.

2. Give some of the better antiseptics before mentioned. Assist the kidneys by lightening their labors by good elimination from the bowels. All authorities agree that the bacillus coli communis is the most frequent cause of renal infection (von Wünschhein, 66 per cent), hence it will be well to inhibit their multiplication in the intestines by the intestinal antiseptics. A certain proportion of cases of this type will be cured by these simpler means, and all benefited.

3. When after a reasonable trial of these remedies, and the use of the ureteral lavage á la Casper, Albarran, or Kelly, the cases progress unfavorably, as a majority perhaps will, there remains nephrostomy.

This is not the time or place to relate the technique of an operation to be found fully described in all books on operative surgery, but I may be pardoned if I emphasize a few points. First, the term nephrostomy means the establishment of a temporary or permanent opening, while nephrotomy means an incision of the kidney with closure at the same sitting, the latter being occasionally used in the removal of stones. These are the only remaining terms with these endings that continue to be used confusingly, cystostomy, colostomy, and enterostomy having now a definite meaning, as should nephrostomy. Every renal operation that can be done without opening the peritoneal cavity is the safer operation; especially is this so with the septic kidneys—hence the selection of a retroperitoneal route. Personally, I favor a nearly transverse incision, a fingerbreadth below the last rib. It is possible to do a muscle-splitting operation instead of a cutting one. It has not been my fortune to meet with many cases in which it seems possible or wise to deliver the kidney, as many operators recommend, external to the body, and I feel sure I have seen a death from too great traction on the pedicle of the right kidney, which, constricting the inferior vena cava, cuts off the return flow to the heart. Again, I have never bisected the kidney along its convex border to determine the nature and extent of its pathology, but have been reasonably successful by exploration through a blunt perforation of its posterior aspect half-way between the convex outer border and the pelvis, the situation in which drainage with future healing can best be made. Walling off the pockets

carefully with gauze has protected against a retroperitoneal cellulitis. Drainage by the flanged empyema tube of Andrews has seemed to meet the requirements. With the establishment of thorough drainage, combined with the through-and-through lavage that can now be practiced, there will be found but few cases resisting treatment, and not permitting, after the conditions are favorable as found by the urinalysis, the removal of the tube. It is wise to first shorten the tube until external to the kidney, but keep it down to the kidney until urine fails to escape and there are no symptoms of retention. It will occasionally happen that a fistula persists for months; then either the ureter must be made patulous, or a nephrectomy done, as under conditions to be described later on.

Acute hematogenous or descending infection of the kidney is of occasional occurrence and heretofore rare in its operative interference. Pyemic infarcts occur here as elsewhere, and when in particularly favorable cases in which other foci were absent or easily reached, have been recognized and treated by a nephrostomy. More common than these acute infective emboli are those infections occurring with such constitutional febrile movements as scarlet fever, diphtheria, typhoid, etc., the latter due either to the bacillus typhosus or its closely allied bacillus, the coli communis. When the bacillus tuberculosis is the infective element by this route, and acute in invasion, it is miliary in character and not amenable to treatment. When, then, the invasion has been of the descending, *i.e.* hematogenous, type, it will be deemed wisest to at once make the radical drainage of the kidney without temporizing with the vesical treatment.

As causative factors in the chronic ascending infections we have the same microorganisms, generally speaking, but making their invasion more frequently because of some mechanical factor, chiefly of an obstructive character to the free escape of the urine. Since this may be at any point of the urinary tract, intelligent treatment should be directed to its removal. With the restoration of a free exit, many a case of renal infection has become quiescent. When due to a stricture of the urethra, its cure may result in a subsidence in the renal symptoms. Often a case of prostatic hypertrophy causing retention and surgical kidney has, on the cure of the former, seen the latter disappear. So with tumors of the bladder, pressure on the ureter, stricture of the ureter, kink of the ureter from movable kidney, faulty implantation of the ureter—in each case first to remove the cause when feasible, and then only resort to nephrostomy or nephrectomy when it has been demonstrated that one or the other

has become necessary. The conditions favoring this variety of infection are those favoring the productions of the cystonephroses elsewhere described in these papers, and making similar procedures necessary. This variety, too, being of gradual onset, is often overlooked by the patient or not discovered by his physician until the renal destruction has been so great that the total removal of the kidney may be necessary for the cure of the patient. Ere this be done, however, three things must be determined: (1) The functional capacity of the opposite side; (2) its freedom from similar diseases; (3) the valueless character of the kidney to be removed. I have been surprised beyond measure at the functional capacity remaining in enormously distended pyo- and hydronephroses, and surgical kidneys, in which, on making the preliminary nephrostomy, I was in doubt as to the advisability of leaving to another time an organ apparently so useless. Yet sometimes, after the lapse of a few days, the quantity of urine poured out demonstrated how useful an organ still remained, perhaps to be preserved to the patient if the etiological factor were to be found and removed—in any event, to make the chances of an ultimate recovery of the patient greater by putting him in better condition to withstand future optional nephrectomy. In one variety of the chronic ascending infections, however, I believe nephrectomy is at once advisable—*i.e.*, the tubercular —as nephrostomy, or partial nephrectomy, is not likely to effect a cure, while surely exposing the patient to a possible infection of the wound with spread to the general system. Whenever feasible, at the same sitting, the ureter should likewise be excised as Curtis urges, as almost sure to be infected and require secondary operation. When the difficulties of the nephrectomy render this inadvisable, then a later secondary operation should be performed. Contraindications might exist in extensive pulmonary or other invasions, but general vesical tuberculosis seems generally benefited thereby.

Among the chronic descending, *i.e.* hematogenous, varieties, we have chiefly the caseous nodules of a chronic tuberculous process. In Israel's experience, about 70 per cent of tuberculous kidneys occur by this route, and as only 12 per cent are double-sided, a cure can be hoped for by nephrectomy.

I shall omit from consideration the calculous pyelites, which are now proven to be always incident to the deposit upon bacteria of urinary salts, and close with the statement of the averages of mortality as drawn from the more recent statistics: 7 to 13 per cent for nephrostomy and 18 to 32 per cent for nephrectomy, as compared with 35 to 54 per cent for the latter twenty years ago.

TUBERCULOUS PERIMYOCARDITIS WITH TUBERCULOUS AORTIC ANEURISM IN A DOG.

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I am indebted to Dr. Donlon for the opportunity to study the following highly interesting case. The clinical history and post-mortem examination are by Dr. Donlon.

The animal was a fine, intelligent bulldog, eight years old, weighing in health about forty-two pounds, splendidly proportioned, a victorious fighter, displaying in all its encounters more than ordinary strength and endurance. It sprang from a healthy stock.

The present trouble began three years ago; it was first noticed a few days following a short confinement in the dog pound. The dog became mangy, scratched and tore its hide with its teeth, and was soon covered with sores. It rapidly lost flesh, was easily fatigued and rendered breathless; ascites followed. The disease was regarded as of the heart, and thought to follow injury of the breast from kicks while in the dog pound.

The abdomen was tapped, and the dog soon regained its former vigor and so remained for about fifteen months. Then it gradually became emaciated, was persistently attacked by fleas, which caused it to scratch and tear its hide badly. It became breathless on slight exertion; its appetite poor; its legs edematous. This condition continued for about a year, when, after a few days of failure, the dog died.

Post-mortem examination was made about eighteen hours after death. Dog, male; weight about twenty-five pounds; poorly nourished. Extremities swollen from edema. Pleural cavities empty and free from adhesions. A depressed scar two inches long was found in the apex of the right lung. The inner anterior borders of both right and left lungs are adherent to the pericardium, from apex almost to base; the adhesions are rather firm, and the lung tissue in the vicinity of the adhesions normal; crepitant throughout; no tubercles present. The bronchial glands are enlarged to the size of a hazelnut and pigmented. The pericardial layers are adherent from base to apex. The adhesions separate with some difficulty, leaving raw surfaces in some places, interspersed with irregularly shaped firm white masses, which project above the cardiac tissue. The peritoneal sac is empty and normal in appearance. The alimentary canal is normal. The liver is normal. The right kidney is about one and a half times the size of the left, which is appar-

ently atrophied; it contains two small white spots about the size of millet seeds and not unlike tubercles. The testicles are normal. The mesenteric and retroperitoneal glands are normal. The brain and cord were not examined.

The heart was placed in a solution of formalin and eventually brought to my laboratory. A more extended examination of the heart shows the following: The heart measures 8.5 centimeters from base to apex, and transversely in its greatest diameter 7.5 centimeters. The anterior and right lateral surfaces of the heart are

covered quite uniformly with nodules, varying in diameter from 0.5 to 2.5 centimeters. Some of them have coalesced, especially those covering the right heart and apex, forming large masses. Two isolated nodules are present on the posterior surface of the right heart, and the right auricular appendix is involved by two separate growths, one located at its apex. The nodules in the heart muscle project above its surface about 2.5 millimeters and are covered by epicardium. On the cut surface the nodules appear lighter in color than the heart muscle and firmer in consistency. They extend to a depth in the heart muscle equal to one-half of its entire thickness. The interior of the heart is normal.

One nodule, about 1.5 centimeters in its greatest vertical diame-

ter, is located at the obtuse angle of the junction of the innominate artery and aorta. It involves the arterial wall and extends about half-way around these vessels. On the cut surface it is shown to be one centimeter thick as an average, the center being thicker than the margins. The cut surface is grayish in color and is clearly distinguishable from the arterial walls, which it has replaced to some extent. The internal surface is roughly concave and shows a ragged excavation, with the apex directed outward and its base toward the arterial lumen. At the deepest point it is six millimeters. This excavation, or aneurismal bulging, involves the center of the nodule.

Microscopic sections of the nodules in the heart show an extensive, rather recent, fibrous framework subdividing the nodules into a number of irregular spaces, or nests, of varying size and outline. The spaces contain accumulations of cells, the central part generally being degenerated and necrotic, the nuclei refusing to stain. In the older necrotic areas the outlines of the cells are wholly lost, a granular detritus remaining. There is much cell infiltration into the fibrous framework of the nodules, and also into the myocardium adjacent. The cells are mostly of the type of the small lymphocytes; there are numerous plasma cells, some endothelioid cells, but few polymorphonuclear leucocytes, and no giant cells. There are no typical tubercles anywhere. Numerous sections were stained for tubercle bacilli, and after many trials a few scattered organisms were found among the cells.

Sections of the nodule upon the aorta, cut parallel with the long axis of the aorta, show in the center the excavation mentioned in the foregoing. The main mass of the nodule is of the same structure as the subepicardial nodules, and is situated in the adventitia of the aorta; there are a number of nerves along its external margins. Distinct lymph nodes are not seen. There is extensive necrosis throughout the mass. On carefully examining the various coats of the aorta, at the site of the aneurismal bulging, in sections stained by Weigert's method for elastic fibers and by the ordinary methods, the following is made out: There is considerable fibrous thickening of the intima about the opening into the aneurism; there are some areas of infiltration with cells in the interior and at the margins of the fibrous tissue which does not contain any elastic fibers. The most frequent cell form is probably young connective tissue cells, but plasma cells, lymphocytes, and polymorphonuclear leucocytes are present; there are no giant cells; there is more or less necrosis among the cells. As the margins of the aneurismal opening are approached

the fibrous tissue becomes thicker at the same time as it becomes hyalin and anuclear, staining diffusely with eosin, and covered with hyalin thrombotic material which stains brightly red with eosin.

Corresponding to the center of the opening into the aneurismal cavity there appears to be a complete interruption, for about three to four millimeters, of the intima and the media. This is shown especially well in sections stained by Weigert's elastic fiber method. The margins of the media, and especially of the intima, are turned outward into the little cavity. The media is cut across abruptly, as if a piece had been punched out, and the margins are either free or covered with masses of the thrombotic, hyalin material which is found throughout the excavation in the nodule in the adventitia. Some of this thrombotic material fell out during the preparation of the sections. Strands and shreds of elastic tissue are present in the wall immediately below the margins of the defect in the media, and from their arrangement it appears as if they had been carried outward as the wall gave way. Numerous islands of cells are present in the media near the defect; they are most marked in the deeper or external layers of the media, and corresponding to these islands there is a complete absence of the elastic elements. As the shallower parts of the cavity are examined it is found that the media is extensively invaded by granulation tissue, so that the elastic layers are broken up into irregular fragments and masses which have become disarranged. There is more or less marked outward bulging of the media, and in places complete interruption of its continuity has taken place, the elastic elements being apparently broken up and pushed away. Here the thickening of the intima is also usually well marked, covered by hyalin material, and containing inflammatory districts similar to those in the adventitia and the media. In a few places the elastic elements of the media appear to have lost their affinity for Weigert's stain even where there are no inflammatory changes, and irregular patches occur in which the elastic layers appear to be replaced by fibrous tissue, the normal elastic layers passing apparently directly into fibrous bands; but no break in the wall ever occurs at any such place. In the main the reaction to Weigert's stain is typical and decisive.

On staining for tubercle bacilli by means of the carbol-fuchsin method enormous masses of acid-proof bacilli (resisting decolorization for several minutes by 10-per-cent sulphuric acid in water and by 3-per-cent nitric acid in absolute alcohol) are seen in the innermost layers of the internal thickening and in the hyalin deposits upon the intima. In order to better study the bacilli, narrow transverse

layers were cut, extending across all the coats of the vessel at the margins of the aneurismal cavity, and embedded in paraffin; sections were then stained and counterstained in various ways after being fixed to the slide. But few organisms are present in the nodule in the adventitia; here they occur singly and only occasionally. In the intimal thickening dense masses are found between and upon the trabeculæ of the connective tissue and of the hyalin thrombus, frequently without any evidence of acute cellular reaction about them, but growing in switches or tresses as if in pure culture, and visible to the naked eye as red patches. Masses are also found between the elastic laminæ of the inner layers of the media and in the cellular areas in the deeper layers. While studying the relations of the bacillary masses to the various layers of the vessel, I made the observation that when the tubercle bacilli are stained with carbol-fuchsin, decolorized by sulphuric acid or Gabbet's solution, stained with acid orcein, washed in alcohol, and cleared in clove oil, they assume a violet or purplish color, which is permanent. This reaction may be worthy of further study.

A lymph node connected with the pericardium shows a fibrous structure, much coal dust, rather hyalin blood-vessels, numerous plasma cells, and a few foci of necrosis similar to those in the subepicardial nodules; but no giant cells and no typical tubercles.

No other tissues were examined microscopically.

In regard to tuberculosis in the dog, and to tuberculosis of the canine pericardium in particular, attention may be directed to Sheldon's article,[1] in which is recorded an example of tuberculous pericarditis studied in this laboratory, and to recent reports of similar cases by Petit,[2] and by Petit and Basset.[3]

The principal point of special interest in the present case is the periaortic nodule and the changes in the wall of the aorta. They call to mind the interesting subject of tuberculosis of the aorta in general, a subject so recently and so fully considered by Blumer[4] in this country, and by Benda[5] in Germany, that there remains for me merely to point out the essential features, and if possible the mode of origin, of the tuberculous aortitis in my case.

Benda was led to study tuberculosis of the aorta in connection with his investigation of the genesis of acute general miliary tuber-

[1] MEDICINE, 1899; and Transactions of the Chicago Pathological Society, 1900, iii, 492–497.

[2] *Bullet. et Mém. de la Soc. Anat. de Paris*, 1900, lxxv, 257.

[3] *Ibid.*, 292 and 336, and 918–920.

[4] *American Journal of the Medical Sciences*, January, 1899.

[5] *Berliner Klin. Wochenschr.*, 1899, Nos. 26, 27, 29; *Verh. d. Deutch. Path. Gesellsch.*, 1900, ii, 335–345; Lubarsch and Ostertag's Ergebnisse, 1900, v, 447.

culosis. This large problem is discussed also by Gaylord in his "Critical Summary of Literature on Tuberculosis of the Walls of the Blood-vessels and the Production of Miliary Tuberculosis,"[1] in which are reviewed the principal events in the development of our knowledge of this subject previous to Benda's work.

Tuberculosis of the aorta may be caused by extension into the aortic wall of extravascular tuberculous foci—for instance, in lymph nodes, as shown in the cases described by Dittrich[2] and Kamen.[2] In Dittrich's case numerous bacilli were present in the aortic wall which contained tubercles. In Kamen's case dilatation and rupture of the aorta had occurred at the point of adhesion to the gland. Bacilli were not found in the aortic wall, which was tuberculous and arteriosclerotic. In Sigg's case[3] the tuberculous lung, containing a cavity, was adherent to an aortic aneurism which bulged into the tuberculous cavity; the wall of the aneurism was perforated, but the opening was covered externally by the caseous contents of the cavity and internally by a thrombus; the aneurismal wall was tuberculous, and many bacilli were present even in the thrombus. Buttermilch[4] describes tuberculosis of the aorta as due to extension from a tuberculous focus in the vertebræ.

Petit and Basset[5] describe a hemorrhagic pericarditis in a dog with general tuberculosis of the lungs, peribronchial lymph nodes, liver, and kidneys. In a mass of tuberculous glands at the tracheal bifurcation was a cavity filled with blood, and in communication with the lumen of the aorta, the wall of which had been perforated by a progressive caseation. The tuberculous generalization was traced to this rupture of the aorta.

This group of cases are all samples of what Benda calls tuberculous periangitis—that is, periaortitis—which as in other vessels may extend clear through the vessel wall. The inner aspect of the lesion may be covered by thrombotic deposits in which bacilli proliferate freely.

But tuberculosis of the aorta may also result from the implantation of tubercle bacilli upon the healthy or the sclerotic intima, or from their lodgment in an existing thrombus. It is seen that in respect to genesis and other features aortic tuberculosis corresponds well to tuberculosis of other vessels, including the thoracic duct and also the heart.

[1] *American Journal of the Medical Sciences*, July, 1899.
[2] Cited by Blumer and Benda, *loc. cit.*
[3] Cited by Blumer and Benda.
[4] Inaug. Diss., Berlin, 1898.
[5] *Bull. et Mém. de la Soc. Anat. de Paris*, 1900, lxxv, 918–920.

Recent more or less distinctly miliary tuberculosis of the aorta is mentioned by Weigert in his epochal studies on acute miliary tuberculosis, and typical examples are more fully described by Schuchardt,[1] Flexner,[2] Hanot,[1] Hanot and Lévy,[1] Blumer,[2] who records two instances. In all these cases there existed a general miliary tuberculosis; the structure of the aortic lesion, usually not over a pin's head in size, was that of small aggregations of cells or of more or less distinct miliary tubercles, usually with some caseation, and containing now few, now innumerable bacilli. Generally these nodules appear as if placed directly upon the intima, the cell infiltration not extending below the inner elastic layer. In one of Blumer's cases there were three separate nodules of this kind upon the intima of the abdominal aorta, which in general seems to have been involved nearly as frequently as the thoracic. Arteriosclerosis may be absent or present.

It is probable that the further growth of the intimal tubercles, associated with more or less thrombotic deposits, gives rise to the larger, more polypoid tuberculous formations, with irregular, nodular, though smooth surface, and sometimes several centimeters long, described in the aorta by Hanot,[3] Stroebe,[4] Benda,[5] Aschoff,[6] and Longcope.[7] (Longcope's report reached me after this article had been put in type.) These cases were all undoubtedly of endaortic origin. In Aschoff's case the polypoid outgrowth is described as bean-sized, attached by one end to a sclerotic area in the aorta, and as resembling much a white thrombus. These foci present the same results of the molding of the current as thrombi. It may consequently be difficult to recognize these foci as tuberculous from the naked-eye appearances; and this is also true of the smaller miliary growths. All the instances of polypoid aortic intimal tuberculosis seem to have developed upon sclerotic areas. Besides typical tubercles with giant cells, these growths also present distinct caseous foci, sometimes wholly liquefied, and on the free surface are layers of trabeculated, hyalin, thrombotic material. Tubercle bacilli in enormous numbers were present in all the nodules of this kind that have been described. Both Benda (who described two different cases, one being regarded as a tuberculous metastasis in a thrombus) and Aschoff lay special stress upon this fact. In their cases the

[1] Cited by Benda.
[2] *Johns Hopkins Hospital Bulletin*, 1891, ii, 120.
[3] Cited by Benda.
[4] *Centralbl. f. Allg. Path. u. Path. Anat.*, 1897, viii.
[5] *Verh. d. Deut. Path. Gesellsch.*, 1900, ii, 335–345.
[6] *Verh. d. Deut. Path. Gesellsch.*, 1900, ii, 419–421.
[7] *Johns Hopkins Hospital Bulletin*, 1901, xii, 27–28.

bacillary areas were readily visible to the naked eye in the stained specimens, and microscopically the arrangement in tresses as seen in growths of the tubercle bacillus upon artificial media ("Kulturzöpfe") was noted. Colossal masses of bacilli may be present in the thrombotic layers directly under the blood-stream; the surface of the nodule may be glistening and smooth, yet the blood-current may be in direct contact with the bacillary masses—hence the importance of such endovascular foci in the development of miliary tuberculosis. Indeed, it seems that the larger endovascular foci present exceptionally favorable conditions for the growth of tubercle bacilli. This has been noted also in polypoid tuberculous endophlebitis and in tuberculous endocarditis. The thrombotic deposits, at first fibrinous, later trabeculated and homogeneous, serve as an excellent culture medium for the bacilli, which grow luxuriantly into the material in the same manner as on artificial media. This is shown well in my case, the thrombotic deposits about the opening of the aneurismal bulging containing great heaps of bacilli. On account of the great multiplication of bacilli in the endovascular tuberculous formations and its significance in the etiology of general miliary tuberculosis, Benda appropriately designates them as breeding-places ("anreicherungstätte").

With this brief summary of aortic tuberculosis before us, it is seen that the lesion of the dog's aorta corresponds most closely to the case described by Kamen of extension to the aorta of tuberculosis in a lymph gland, with subsequent aortic dilatation and rupture. Whether the lesion in the dog's heart is primarily periaortic or endaortic it is now probably not possible to determine definitely. Perhaps it is more reasonable on the whole to regard it as the result of extension from without, the periaortic focus being a result of the tuberculous infection of the pericardium. We have learned from the case described by Sigg that tubercle bacilli may proliferate freely in the endovascular deposits even though the invasion occurs not from the blood but from without. Hauser[1] and Kossel[2] show this to be true also in perivascular tuberculosis extending to the cranial sinuses. Hence the vastly greater number of bacilli in the innermost parts of the aortic lesion as compared with the perivascular portion does not necessarily mean that the extension is from within outward. Benda also recognizes the fact that the number of bacilli in the inner layers of an endovascular tuberculous lesion due to extension from without may be quite as great as in the primarily

[1] *Arch. f. Klin. Med.*, 1887, xl.
[2] *Charité-Annalen*, 1892, xvii.

endovascular, polypoid tuberculosis. Indeed, it seems quite probable that it is the character of the substratum, especially the fibrinous material, that largely determines the production of such large masses of bacilli in these foci rather than the direction from which localization takes place.

On the other hand, there is no decisive evidence that could positively exclude the possibly primarily hematogenous nature of the aortic lesion. It even might be claimed with some show of reason that the pericardium became infected from the aortic focus. As shown by Weigert and by Benda an endovascular focus of this character precedes the development of general miliary tuberculosis, and consequently it may exist without necessarily being associated with the general miliary disease. As taught at present, hematogenous polypoid tuberculous endangitis results from the implantation upon the intima of a few bacilli entering the circulation directly or indirectly from some local area; this is succeeded by a massive proliferation of bacilli in the resulting nodule, which eventually becomes the center of dissemination for the bacillary hosts causing the general tuberculosis. Hence the lesion in the dog's aorta may have resulted from a primary endangitis even though there was no miliary tuberculosis. It might at any time have become the source of a general tuberculous eruption; but the animal died without any explosive distribution taking place, as far as can be told from the appearance of the organs after death.

The possibility that the aortic lesion might have resulted through the vasa vasorum should be mentioned. As far as I can see there is not any special point of evidence to be urged for or against this possibility.

At all events the tuberculous granulation tissue caused the elastic fibers and layers of the media to melt away, and perforation and aneurismal bulging to take place. This aneurism may be compared with the erosion aneurisms that develop so frequently upon the branches of the pulmonary arteries coursing through tuberculous cavities. In this case the tuberculosis would be regarded as beginning in the adventitia and extending to the media and intima. I have called attention already to the similarity between Kamen's case and my own. Or the aneurism may be compared with the mycotic or embolic aneurisms observed in the brain as well as elsewhere. In this case the tuberculous infection would have to be regarded as primary upon the intima — a metastatic intimal tuberculosis with destruction of the walls of the aorta and the formation of an aneur-

ism. Benda describes and figures[1] several spindle-shaped tuberculous aneurisms of the thoracic duct caused by polypoid tuberculous endangitis; in these the media and adventitia remained intact. In tuberculous leptomeningitis I have seen a caseous intimal focus cause perforation of the elastic layer, the ends of which were bent outward, there being some infiltration of the media and the adventitia, the whole picture resembling a small aneurism.[2]

In concluding it may be said that a tuberculous invasion of the aorta caused perforation of the wall and aneurismal bulging; that the tuberculosis probably invaded the wall from without, but that a primary tuberculous endangitis cannot be excluded positively; and that the inner layers of the intimal thickening, due partly to proliferation, partly to hyalin thrombosis, contain tubercle bacilli in enormous numbers, but that a miliary tuberculosis did not exist, although the conditions for its development at any moment were quite well established.

[1] *Verh. d. Deut. Path. Gesellsch.*, 1900, ii, 335–345.

[2] See Fig. 5, plate vii, *Journal of Experimental Medicine*, 1896, i.

BOOK REVIEWS.

ROMANTIC LOVE AND PERSONAL BEAUTY. Their Development and Causal Relations. By H. T. Finck. New York: McMillan & Co. 1887.

PRIMITIVE LOVE AND LOVE STORIES. By H. T. Finck. New York: Charles Scribner's Sons. 1899.

The mightiest of human instincts, as Macaulay calls the reproductive instinct, is too intimately related to the physical basis of human weal and woe for physicians prudishly to ignore any of its phases. The anguish associated with sterility in the female, and the terror about impotence exhibited by the male, are familiar to every physician. Nor should these phenomena be treated flippantly, since upon perfection of the reproductive apparatus depends the position of man in the scale of evolution. The subject, moreover, has important ethical aspects which Maudsley has not stated too strongly when he points out that "were man robbed of the instinct of procreation and of all that spiritually springs therefrom, that moment would all poetry, and perhaps also his whole moral sense, be obliterated from his life." The first of these two volumes is devoted to one phase of this evolution of ethics from an appetite in its essence altruistic, since, as biologists have demonstrated, it sacrifices growth of the individual to growth of the race. This altruistic element becomes more demonstrably evident when the tendency of a complex mental state to inhibit a simple explosive tendency is remembered. The phenomena of sexual selection demonstrate that a complex mental state has resulted from the evolution of the simple search for physical sexual means of satisfying protoplasmic hunger. These sexual selection phenomena show that pleasure has ceased to be dependent on simple sexual conjugation, since ideas of beauty, of attraction to the most beautiful, and of maternal love have evolved from the sexual desire of satisfying protoplasmic hunger. Thus have been developed inhibitions on explosive sexual performances, which tended to restrain egotism evident in the purely sexual propensity. Hence pleasure associated with conjugation with a given subject arose on sight of that subject, and sexual pleasure evinced itself in attempts to please the cause; these repressed explosive manifestations of the sexual appetite, thus producing more intellectual and less obvious physical enjoyment of sexual society. By an ordinary law of mental association, attempts to please the cause of sexual pleasure, in themselves finally pleased without the presence of the cause. Thus developed romantic love, which restrained egotism by forcing recognition of a secondary *ego;* that basis of all morality which is the essence of the Golden Rule.

Finck ignores the sexual appetite as the foundation, for he defines romantic love as "an esthetico-moral sentiment destined to become the stronger of all agencies working for the improvement of the personal appearance, social conditions, and happiness of mankind. The composite nature of love is analogous with 'overtones' in music, between which and the elements of love there exists a wonderfully close analogy. In love the fundamental tone is the sexual relation—the fact that one of the lovers is male and the other female. This fundamental tone does not vary throughout nature. It is the same among animals and

savages as among civilized men; and what distinguishes the passion of one of these groups from that of the other is alone the overtones of love, which vary in number, relative prominence, and refinement. These overtones are individual preference, exclusiveness, jealousy, coyness, gallantry, self-sacrifice, sympathy, pride of conquest and possession, emotional hyperbole, and admiration of personal beauty. The last is the esthetic overtone of love, and so prominent is it that it is commonly heard before and above all the others. The evolution of romantic love began very early in evolution. The characters of romantic love in the passion of animals are jealousy, coyness, individual preference, and admiration of personal beauty. In passing from animals to man we find at first not only no advance in sexual relations, but a decided retrogression. Among some species of birds, courtship and marriage are infinitely more refined and noble than among the lowest savages, and it is especially in their treatment of females both before and after mating that not only birds but all animals show an immense superiority over primitive man; for male animals only fight among themselves and never maltreat the females. Romantic love depends on courtship, and of this savages have but three grades —capture, purchase, and services. It is not likely that romantic love could arise in a girl whom a savage has knocked on the head and dragged off to his hut. Purchase is the prominent survival of these types of marriage, although elopements are the sturdy relics of marriage by capture."

"Among birds and mammals differentiation of the nervous system and a higher pitch of the whole life is," according to Geddes and Thomson (Evolution of Sex), "associated with what only pedantry can refuse to call love. Not only is there often partnership cooperation and evident affection beyond the limits of the breeding period, but there are abundant illustrations of a high grade of morality, of all the familiar sexual crimes, and of every shade of flirtation, courtship, jealousy, and the like. Those skeptical on this point should consult Buchner (Liebe in der Thierwelt), whose work contains an overflowing wealth of instances."

As has been well remarked (*American Journal of Insanity*, October, 1900, p. 386), Finck in his "Romantic Love" omits to take into consideration what any but a dilettante sociologist would regard as the essential foundation—"the sexual appetite. If this be not concerned, why is it that love is usually confined to the age of reproductive activity; that it naturally leads to matrimony; that romantic love between persons of the same sex, common enough among young ladies in boarding-schools, is viewed askance by the judicious?"

The view that the sexual appetite is in itself impure is one ominously suggestive of sexual inversion, perversion, or perversity. Such a view is very frequent among these classes of sexual abnormalities.

Finck puts the case against "marriage by capture" too strongly. Tribal ethics of fetishistic origin generally combat romantic love within the limits of the tribe or among those bearing the same totem. Marriage by capture hence must often have been regarded by the captive as a flattering tribute to her attractions. That romantic love could and did arise from these marriages by capture there is abundant evidence to prove. Marriage by capture persisted in northern England and Scotland until late in the eighteenth century, and in Ireland even in the nineteenth century. Sir Walter Scott quotes a Scottish matron as defending marriage by capture on the ground that her father never saw her mother until he brought her up from the Lowlands with several head

of cattle, yet there was not a happier couple in the country. How late in the evolution of marriage the element of capture continued is shown in the retention of the "best man" at the modern marriage. This is a symbolic representation of the "best man" at the capture (Letourneau's Evolution of Marriage). Among Sclavonic races, and even among the Welsh, symbolic mock marriage by capture still survives in rural districts. This mock marriage by capture, whose only survivals among English-speaking Americans are the "best man" and the elopement, was a relief to the woman from that enslavement to the husband's family which produced polyandry. Traces of this long survived among the Jews. Onan's crime was committed against polyandric family ethics, and was a departure in the direction of the monogamic family. Onan insisted on his children being his own, and refused to raise up seed to his elder brother.

This error of Finck as to the ethical aspects of the sexual appetite has led him in his second volume to separate romantic love from conjugal love, which last he regards as a distinctly higher type. Conjugal love is the essence of the higher type of romantic love. Marital relations are not always prompted by conjugal love; when they are, the ideal type of romantic love is present. It is not surprising to find in Finck's second volume an increased unwholesomely prurient prudishness as to the sexual relation ominously suggestive of a still more distorted sexual pervert intellectual taint than in "Romantic Love and Personal Beauty." In many respects this prurient prudishness destroys the importance of a valuable collection of biologic, ethnographic, and sociologic data. The two works nevertheless merit place in the library of the physician, who perforce is the sociologist *par excellence*. The style in the main is excellent and the publishers' work well done.

A Text-book of Pathology. By Alfred Stengel. Third Edition. Price, $5.00. Philadelphia and London: W. B. Saunders & Co. 1900.

The first edition of Stengel's Pathology appeared in 1898. That three editions have been called for in two years is sufficient evidence of its popularity. This last edition is substantially like the first, with the exception that some twenty-three pages of new matter have been added, with some additional illustrations. Like the former book, it is divided into two parts. The first part, that dealing with the general subject, discusses disease from the standpoint of cause and nutrition. Then follows disturbances of the circulation, together with a description of the retrogressive and progressive tissue changes, and a chapter on inflammation. Bacteria, and the diseases due to bacteria, as well as those caused by animal parasites, come in for extended study. We naturally turn with interest to the discussion of the pathology of the blood from the author's well known original studies in this field. The principal place of formation of the red corpuscles is thought to be the bone-marrow, but the spleen and lymphatic tissues probably play an important part. The white corpuscles are said to originate in the bone-marrow, lymphatic tissue, and spleen. The lymphocytes are thought to be the youngest form, and the other varieties secondary developments from these. Chlorosis is classed as a primary anemia; that it may occur in men is admitted.

In the description of the lymphatic tissues and ductless glands, an excellent plate is reproduced in colors from Kast and Rumpel, showing the differences in appearance of the bone-marrow in pernicious anemia and leukemia. A

reference to the excellent studies of Hektoen upon fragmentation of the heart muscle is found in a reproduction of one of his plates. Typhoid fever is classed among the diseases of the gastrointestinal tract, and is spoken of as an acute specific inflammation of the lymphoid elements of the intestines. It is stated that the organism enters the gastrointestinal tract and multiplies in the small intestine. We are quite sure that this definition will not be accepted by the majority of observers; too many cases of typhoid fever have been reported, presenting all the characteristic signs of the disease, as well as a recognition of the bacillus, in which no changes in the lymphoid tissues have been found. The frequency with which remote suppurations, due to the Eberth bacillus, have been identified is too great to admit of its being classed as distinctly a disease of the intestinal tube.

In speaking of scarlet fever, the writer says that the weight of evidence seems to suggest the pyogenic micrococci as the probable causative agents, though he admits that this is by no means established. The discoveries of Class do not seem to have attracted the writer's attention; many excellent observers regard the latter as having quite perfectly established the causative relation of the microorganism discovered by him.

The work is well issued by the publishers, but many of the illustrations are no longer new and would be materially improved by redrawing and the making of new plates. It is a practical, useful, and condensed work, presenting the subject of modern pathology in a way well adapted for the undergraduate.

STUDIES IN THE PSYCHOLOGY OF SEX. By Havelock Ellis. Price, $2.00. Philadelphia, New York, and Chicago: The F. A. Davis Company. 1900.

In finishing this interesting, rational, and philosophic work, one can but be impressed with the bigotry and intolerance which made its publication necessary in America, rather than in England. It is evident that the author does not regret this, as he says: "Availing myself of the generous sympathy with which my work has been received in America, I have sought the wider medical and scientific audience of the United States. In matters of faith, liberty of professing was centuries since eloquently vindicated for Englishmen; the liberty of investigating facts is still called in question under one pretense or another, and to seek out the most vital facts of life is still in England a most perilous task."

The evolution of modesty, the phenomena of sexual periodicity, and autoeroticism are the subjects especially considered in this book. They are complete in themselves, but are evidently intended to serve as an introduction to a more comprehensive analysis of sexual phenomena. The author has, so to speak, attempted to clear the ground for the practical sociological and psychological consideration of the phenomena of sex. In referring to the narrow and often bigoted manner in which such subjects are approached, the writer says: "It may safely be said that in no other field of human activity is so vast an amount of strenuous didactic morality founded on so slender a basis of facts. In most other departments of life we at least make a pretense of learning before we presume to teach; in the field of sex we content ourselves with the smallest and vaguest minimum of information, often essentially second-hand, usually unreliable. I wish to emphasize the fact that before we can safely talk either of curing or preventing these manifestations, we must know a great deal more than we know at present regarding their distribution, etiology, and symptoma-

tology; and we must exercise the same coolness and caution—if our work is to be fruitful—we require in any other field of serious study. We must preach these facts as physicians it is true, but also as psychologists primarily concerned to find out the workings of such manifestations in fairly healthy and normal people. If we found a divorce court judge writing a treatise on marriage, we should smile. But it is equally absurd for the physician, so long as his knowledge is confined to disease, to write regarding sex at large; valuable as the facts he brings forward may be, he can never be in a position to generalize concerning them. And to me, at all events, it seems that we have had more than enough pictures of gross sexual perversity, whether furnished by the asylum or the brothel. They are only really instructive when they are seen in their proper perspective as the rare and ultimate extremes in a chain of phenomena which we may more profitably study nearer home."

In the first part of the work on the evolution of modesty, the author has collected together a great amount of valuable data on one of the primary instincts of the race. One must agree in his deduction that it is primarily due to a fear of exciting disgust, and that as civilization advances, instead of modesty becoming intensified, it is rather diminished. Among savages, modesty is far more radical and invincible than among the civilized. Everywhere throughout the civilized world modesty is a much more invincible rule among the lower class than among the more cultivated.

In his chapter on the phenomena of sexual periodicity, the author has brought together some striking data on the periodicity of the sexual functions, which show that they are only part of the physiological and psychological rhythms of life in general.

In the study of auto-eroticism, or the spontaneous manifestations of the sexual impulse, we have the most pronounced example of the scientific and philosophical method applied to a very difficult class of facts. Perhaps the part that will be most interesting to medical men is the deductions of the author regarding the relation of hysteria to the sexual function. He advances very striking arguments which tend to confirm the views of the ancient writers that in some way this disease was closely connected with some abnormality in the sexual organs, though they made the mistake of narrowing it to the uterus.

The relation of masturbation to auto-eroticism—the former being but one of the forms of the latter—is one of the most important additions to our knowledge of this aberration of the sexual function. Taken all in all, this is the most important contribution to the study of sexual psychology that has yet appeared. While we cannot agree with all the views of the author, yet he always advances sufficient data to make one pause before rejecting his theory. One can but commend the lucidity and clearness with which he handles the subject, a style that without flattery may be pronounced Spencerian, and the high plane of the discussion from a moral standpoint.

LEADING ARTICLES.

THE MICROBE OF SOFT CHANCRE.[1]

The first effort at cultivating the bacillus of soft chancre was made by Ducrey, who at the same time described the form of microbe that causes this disease. All efforts at cultivation on the then known media failed. Some years later Petersen claimed to have obtained the development of a microorganism having identical characters with those described by Ducrey upon agar serum, but the growth was by no means constant. These later efforts at cultivation were studied by Nicolle, who attempted to repeat the experiments of Petersen and came to the conclusion that the bacilli of Ducrey could not be cultivated. Recently Langlet presented to the Society of Dermatology pure cultures of the pathogenic agent of soft chancre, but he did not give the formula that was employed in preparing the culture fluid, simply stating that it was composed of proteid elements from human skin by the action of certain energetic soluble ferments. The writers have used in their cultures gelatinized blood (*sang gélose*), the preparation of which was described before the Société de Biologie, February 4, 1900, and which has been found to have certain marked advantages in the culture of microbes which did not develop in the ordinary culture media. They have, upon this medium, obtained pure cultures identical with the bacillus described by Ducrey, and confirmed by inoculation.

FIG. 1.—Microscopical appearances of a portion of a colony grown on gelatinized blood.

The microorganism was obtained from the pus of a primary chancre, also from the pus of inoculation chancres and from pus obtained from chancroidal buboes. After a period of twenty-four hours in the autoclave at 37° C. there appeared round colonies which attained their development in forty-eight hours, having a

[1] F. Bezançon, V. Griffon, and L. Le Sovrd: *La Presse Médicale*, Dec. 12, 1900.

diameter of one to two millimeters. These colonies were stained with gentian violet and methylene blue, and were found isolated or in parallel groups or short chains of three or four links. The bacillus fixes its coloring matter only in its extremities, and is decolorized by Gram's method (Fig. 1).

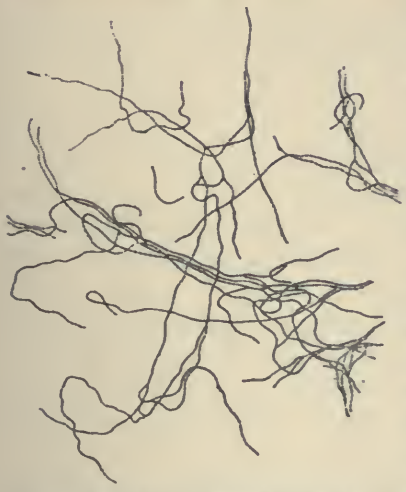

FIG. 2.—Culture in the condensed liquid at the bottom of a tube of gelatinized blood.

In liquid condensed at the bottom of the tubes the microbe develops in a peculiar manner. It is found in chains, and the bacillus is somewhat smaller than that upon the surface of the solid culture medium. These chains are of considerable length, often passing beyond the field of the microscope (Fig. 2).

Ducrey's bacillus can be cultivated in a tube containing the uncoagulated serum of the rabbit. In the autoclave this medium becomes opaque, presenting small flakes. In it the bacilli appear in groups and chains. The vitality of the microbe in this medium is of short duration (Fig. 3).

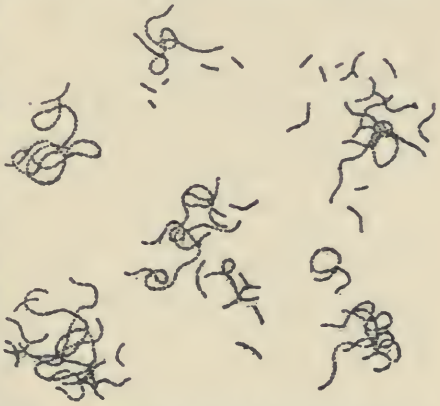

FIG. 3.—Culture on the uncoagulated serum of a rabbit.

That the microbe is that of soft chancre has been shown by the results of inoculation. In cases where a patient has had soft chancre, the organism was cultivated as described and then inoculated into the skin of the abdomen, employing the technique usual in cases of inoculation of chancre for diagnostic purposes. In each case a typical chancre developed. The result was the same whether the bacillus was obtained from the drop of liquid condensed at the bottom of the tube or taken from the solid part of the culture. The same results were obtained where the eleventh generation upon coagulated serum was employed.

These observations refute those of Strauss that the pus of a chancroidal bubo is always sterile. It is evident that in his forty-two cases, had he employed a medium upon which the bacillus of Ducrey would grow, he would have demonstrated its presence.

ENURESIS.

No problem confronts the physician which calls for more painstaking care than the examination of a child presenting this troublesome symptom. In too many instances physicians are content with the statement of the parents that this condition exists, and it is followed by a prescription or some general instructions as to how the child shall be cared for while in bed, for it is usually at night only that this symptom is present, though in a few cases it occurs both by day and by night. As a rule, it is peculiar to early childhood, and after the fifth or sixth year it disappears, though it was noted by Trousseau that if the habit were again established after it had ceased, say at the seventh or eighth year, it proved very obstinate. The condition may continue far into adult life, and when it extends much beyond early childhood it may be the cause of incalculable mental distress. The fact that most works upon the diseases of childhood have a chapter under this heading may lead to the view that it is an essential condition for which treatment is to be instituted. As a matter of fact, it must always be looked upon as a symptom, and the causes of the condition diligently sought. No case of enuresis should be treated without a thorough local and general examination, which should include a careful study of the parts and in every instance a careful examination of the urine and of the rectum.

We have already referred to the fact that age plays an important rôle in the production of this condition, that it is rare in the absence of structural defect after early childhood. Next to age, we would place heredity as one of the leading factors; so much is this the case that it will be found to be almost a family trait, occurring in succeeding generations and frequently affecting nearly all of one generation. It will be found associated with a neurotic heredity generally, and these children have a tendency to night terrors; hysteria and neurasthenia are conditions which frequently occur later in life. As a rule, they will be found to be poorly developed physically, their nutrition below par, and the muscular system poorly developed.

Among the local causes which predispose to this condition is inflammation of the urethra and bladder, such changes being accom-

panied by alterations in the character of the urine, it containing pus, mucus, or epithelial débris. In some cases, wholly unsuspected, stone will be found. A peculiarity to be remembered is that simple acidity of the urine when this fluid is perfectly clear is often followed by a reflex irritability of the bladder, which results in the emptying of this viscus as soon as the inhibitory power of consciousness is removed from the sphincter. In testing the urine, it is well to remember that the day urine is commonly neutral or alkaline in cases in which the night urine is strongly acid. In these cases it is very difficult to get a specimen of the night urine to examine for acidity; hence a practitioner may easily infer from an examination of the day specimen that the urine is not unduly acid, and exclude this as a cause of the enuresis, when such is not really the case. In such patients it would be well to administer something which will render the urine alkaline during the entire twenty-four hours, and observe the effect of this upon the irritability of the bladder. If it markedly diminishes, it would be well to assume that it was due, in part at least, to excessive acidity. Undue acidity of the urine is responsible for an enuresis that is by no means constant. Occasionally a whole night will be passed, or several of them, in which there will be no soiling of the clothing, to be followed by one or more nights in which there is a free discharge of the urine during sleep.

It is exceedingly rare that this condition in childhood is due to any organic disease of the nerve centers, but it is due to a, so to speak, incoordination of the vesical center in which there is a loss of control of the sphincter or an increased action of the nerves having to do with the detrusor muscle.

Structural anomalies are comparatively frequent; they are sometimes found to be slight and of a sort that will escape observation, except upon the most careful and painstaking study. Trousseau mentions a case which had been treated for years by the ordinary methods of internal medication without results, which upon very careful examination was found to present near the opening of the urethra a sinus, which he concluded was the anomalous termination of one of the ureters.

In the treatment of this condition it is well to limit the quantity of fluid taken, particularly near bedtime, and to have the child take some food, though, of course, in small quantity and easily digested, just before retiring. This delays the acidity of the urine several hours beyond what it would be if the child retired upon an empty stomach. Regarding the use of general remedies, the time-honored

belladonna prescription is perhaps as good as any, but at the best it is not curative, and it is only during the action of the remedy that it tends to decrease the excitability of the bladder. When it is continued for a long time toleration is quickly established. In those cases in which organic and structural defects have been excluded and which seem to be dependent largely upon a neurasthenic constitution, general treatment will be found to be by far the most efficient. Cold baths, tonics, attention to the bowels, the administration of cream, and a free out-of-door life—in a word, a hygienic management of a nervous child—will give the best results, far superior to those obtained from local remedies.

The possibility of bladder incompetency is always to be considered. This has not been given the consideration which it deserves in the study of enuresis. Those cases in which there is nocturnal incontinence will often be found to micturate much more frequently during the day than other children who have no symptoms referable to the bladder. This may be due to a deficiency in the size of the bladder, and during the night it simply becomes overfilled with urine, and in the profound sleep of childhood of necessity the detrusor muscle is stimulated to overaction. The same phenomenon is observed in the adult in cases of marked distention, and often in spite of the most strenuous efforts at voluntary control. It is difficult to measure the capacity of the bladder in childhood, but such children should be taught to voluntarily restrain the desire to pass urine as long as possible; in this way the bladder will become distended and of greater capacity. There is a possibility that hydrostatic measures could be usefully employed in these cases, but the trouble and difficulties to be encountered, as well as the possible harm in nervous children, would more than counterbalance the usefulness of the procedure, particularly as it is a symptom which may disappear in the course of time. Certainly, in the treatment of youths and those approaching adult life in which this symptom persists, the possibility of mechanically dilating the bladder by hydrostatic pressure should be considered. Among the causes which should always receive attention is the external meatus in both boys and girls; any irritation of this part, such as phimosis or adhesions, should be carefully broken up, and in males circumcision should be done in every case. In not a few of these latter it will be found that the operation is followed by the immediate disappearance of the symptom, though, of course, much will depend upon the neurotic conditions.

EDITORIAL COMMENT.

THE PRACTICAL AS DISTINGUISHED FROM THE SO-CALLED SCIENTIFIC MEDICAL EDUCATION.

The problem in pedagogics that goes to the very foundation of educational methods is that one dealing with the practical as against the theoretical. This question as applied to medical education has its counterpart in the entire range of education. The system of medical education prevalent in the first three-quarters of the past century was almost wholly didactic and theoretical. This has been criticized, but in view of the different prevailing conditions it is difficult to see how it could have been otherwise. There were few hospitals, dispensaries were limited, and clinical teaching, at least as it is now understood, was scarcely practicable in this country. Laboratories also were unknown, as there was nothing excepting chemistry that could be profitably taught in this way. The apprentice system was in vogue, each student working with his preceptor, seeing his cases, and often acquiring in that way a wide practical experience in the observation and treatment of the sick.

To-day conditions have greatly altered the scope of medical instruction. The enormous increase in highly technical methods of clinical investigation have necessitated the establishment of laboratories for their presentation. Large hospitals have made it possible to make demonstrations upon sick people to show operations, and to a limited extent bring the students in actual contact, though to a less degree than is desirable, with sick patients. It will thus be seen that there has been a tendency of late years to accentuate the practical as against the theoretical side of our science, so far as instruction is given in the schools. Under the old apprentice system the preceptor taught the practical application, and the student came up for a couple of short courses at the college to obtain that theoretical groundwork which was then supposed to be essential in the development of a good practitioner.

The question has of late been raised as to whether we are not going too far in emphasizing the practical side of a medical education as opposed to the theoretical. Some very able teachers contend that the so-called fundamental branches of medicine, such as physiology, anatomy, chemistry, and biology, and possibly bacteriology, should be pursued in an atmosphere in which these subjects are treated as pure sciences apart from their application. There is

much to be said in favor of this view, and there is no question but that the student who comes to the practical application of these principles at the bedside will use them more efficiently if they have been taught him as pure science.

A recent utterance upon this subject by Dr. Russell H. Chittendon, of the Sheffield Scientific School of Yale University, is quite to the point and of as much value in medical education as in the training of those who devote attention to mechanical pursuits. He says: "There can be no question that in any suitable college course, in mechanical engineering, for example, there should be a judicious commingling of the theoretical and practical, but the shop, laboratory, and drawing-room work should be mainly for the elucidation of the theoretical, and not as an end in itself. Given a young man of broad knowledge, with a mind cultivated by the higher mathematics and with a thorough conception of the principles and laws of physics, mechanics, hydraulics, etc., and he will soon adjust himself to the environment of his professional work and eventually rise to a plane far beyond that of a man whose training has been purely technical. If this is so, then such a method of education is to be recommended as more truly practical. I am told by competent engineers, and the statement coincides with my own views, that it is very questionable if the student of engineering derives as much real advantage from the workshop method of instruction as he would gain by expending the time in the study of scientific principles; that the detailed knowledge of the practical application of principles is best obtained by the young man in the shops themselves after his college course, and although he may at first be handicapped, he will quickly adjust himself to the environment and eventually make a far more competent engineer from his broader knowledge of scientific facts and principles. The main object of the practical college course should be to provide a liberal education along various scientific lines, and yet to afford such facilities in certain directions that the student may acquire a proficiency sufficient to fit him for some professional work, or at least to pave the way for further development along some special line."

THE CHICAGO DRAINAGE CANAL IN THE SUPREME COURT.

Proceedings have recently been brought by St. Louis in the Supreme Court of the United States to close the drainage canal, on the ground that it is a nuisance. The city in question asks for an injunction to perpetually restrain the city of Chicago from passing

its sewage through the drainage canal, on into the Illinois river and from there into the Mississippi, on the ground that it is a public nuisance, contaminating the streams of the country and polluting the water-supply of St. Louis. If we understand the legal proceedings so far as they have been argued before the Supreme Court, there was first the question of jurisdiction which the drainage canal trustees contested, but which the court decided adversely to them, assuming that it had jurisdiction. Therefore, the question relates as to the merit of the contention of St. Louis that Chicago has created a nuisance from which she is entitled in equity to relief. There is an old adage in the law to the effect that those who seek equity must do equity. He who comes into a court of equity must come with clean hands. If we apply this rule to the St. Louis-Chicago contest, we question St. Louis's standing in court. The sewage of St. Louis has been emptied into the Mississippi river ever since it has had a sewage system, and if it is admitted that St. Louis has a right to empty her sewage into the Mississippi river, but Chicago has not, where are the equities? Again, what is to prevent Memphis from bringing an action against St. Louis, and New Orleans against Memphis and all cities and towns, from Lake Itasca down, that empty their sewage into the stream?

It may be contended that this Chicago drainage canal is an artificial channel, and not a natural waterway. This is to a certain extent true, but it is to be remembered that in a not distant geologic past the natural watershed of the whole region of Chicago was down the Mississippi Valley, and that for many years before the construction of the present canal a much smaller artificial waterway had carried the great bulk of Chicago sewage down through this same channel. It is probable that under present circumstances it is not as great a nuisance as it was before the opening of the larger canal.

As a sanitary measure it is to be hoped that the Supreme Court will decide that the city of Chicago has no right to pour its sewage into the streams of this State, nor into the Mississippi, and the adoption of such a rule might perforce compel all cities to dispose of their sewage by precipitation, bacterial action, or flowing out upon land. All three methods have been found practicable, though for large cities somewhat expensive. We have always believed that the Chicago drainage canal was a failure from a sanitary standpoint, having no confidence in a large open sewer. We believe that modern cleanliness demands other treatment of sewage than allowing it to pollute the watercourses of the country. It is to be hoped

that the contention of St. Louis may be sustained to the end that Chicago will be compelled to dispose of its own sewage after a more sanitary fashion, but we can readily see how, if this doctrine is adopted, she may find herself with a large contract for sewage disposal on her own hands.

DEFINITION OF MEDICAL PRACTICE.

We notice in the February 2 issue of the *Journal of the American Medical Association* that the political code of Georgia defines the practice of medicine as follows: "For the purpose of this chapter the words 'practice medicine' shall mean to suggest, recommend, prescribe, or direct, for the use of any person, any drug, medicine, appliance, apparatus, or other agency, whether material or not material for the cure, relief, or palliation of any ailment or disease of the mind or body, or for the cure or relief of any wound, fracture, or other bodily injury or deformity, after having received or with the intent of receiving therefor, either directly or indirectly, any bonus, gift, or compensation."

Under this statute an indictment was returned against one O. C. Ballock, in which it was stated that he "then and there, unlawfully and with force and arms, practiced medicine without then and there being authorized to do so, either by diploma from an incorporated medical college, medical school, or university, nor after having attended one or more full terms at a regularly chartered medical college." The Supreme Court of Georgia held that the indictment was not defective because of certain alleged omission of the setting forth of the receiving or having received any gift or bonus. They held that the words "practice medicine" in the statute embraces the idea of exacting a compensation.

This exceedingly cumbersome definition regarding which the Supreme Court of Georgia has so lucidly discharged itself again brings up the question of the value of such definition in a medical practice act. There is a well defined idea in the minds of juries and judges, and of the public in general, as to what constitutes the practice of medicine, and a simple statute to the effect that only those who are qualified shall be allowed to practice medicine would probably be much more easily enforced than one which is encumbered with a long definition, and one that is as difficult to construe as that which we have just quoted. There is no necessity for the definition, but it has been put into the successive medical practice acts since the first tentative efforts in this direction included such a definition.

The great difficulty that has been experienced in dealing with the Christian scientists has been due to this effort to define the practice of medicine. We presume that no rational person would argue for a moment that the procedures advocated by the Christian scientists could be construed into practicing medicine. To be sure, one of our Illinois courts did go so far in a decision, holding a divine healer guilty of practicing medicine, as to state that the laying on of hands, which he practiced, came within the definitions of the medical code. The judge distinctly stated that had he not resorted to this procedure he would have held that he was not practicing medicine.

TREATMENT OF LUPUS BY RADIANT ENERGY.

Several years have elapsed since the initiation of Finsen's light treatment of lupus. Finsen was led to employ light by the fact that bacteria, particularly the bacillus tuberculosis, had their development prevented when exposed to light. Just how light affects the bacteria is not well understood, but there are plant forms which thrive best in darkness or where the action of sunlight is very much restricted. Since the work of Finsen, increased attention has been given to the treatment of lupus by the *x*-rays, the results being superior to those obtained by the action of light. In Finsen's method the exposures must be for long periods; everything depends upon the accurate focusing of the pencil of rays upon the affected surface. If there is much pigmentation or much vascularity, the effect is diminished. Again, the rays must be at approximately right angles to the surface. These difficulties are by no means inconsiderable, and when we reflect that the exposures must be made for from one to one and one-half hours per day and often have to extend over one or two years, it is apparent that the treatment of a considerable area by Finsen's method is a time-consuming business.

The *x*-rays, although the number of observers has been very much smaller than those who have used Finsen's methods, have shown equally good results. The very severe burns that were caused by the older methods of producing skiagraphs have led to great slowness in the adoption of the *x*-ray in the treatment of lupus, but the knowledge which we now have of the action of these rays makes it a method that is comparatively safe. The different quality of tubes in relation to penetration is what determines the deep destruction of tissues. In the treatment of lupus a tube that will give rays of comparatively low penetration, thus acting superficially

upon the skin, is what is aimed at. A little study of the peculiarities of a particular patient will soon determine the length of the exposure; this, in the average case, is about fifteen minutes, and such repeated for several days will usually bring on what is described as a reaction in the part. This "reaction" is what seems to be essential to the curative effect of the rays, and it is also true by the treatment of light. Finsen in his work speaks of the inflammatory condition that is set up, which seems to have such an important influence in limiting the spread of the lupoid process and effecting a cure.

It would be interesting to speculate whether the curative power of both these procedures is due to the reaction or to the direct action of the rays. Light has an inhibitory effect upon the tubercle bacillus when growing in a culture tube, and so far as experiments have been made the *x*-ray has no bactericidal action upon microorganisms in culture media, hence it would be fair to suppose that in the application of light the direct effect upon the organisms is more marked than with the *x*-ray. On the other hand, the Roentgen rays produce greater reaction in the tissues, and this seems to have a directly curative effect upon the lupoid process.

CIRCUMCISION IN THE PREVENTION OF SYPHILIS.

Not infrequently a discussion is had in which legislation is urged to restrict the spread of syphilis. We are told of its ravages, of its hereditary nature, and how frequently the innocent suffer. Then is urged the passage and enforcement of laws which shall directly lead to the inspection and registration of syphilitics and an active quarantine against the disease.

A recent article in *The Lancet* of December 29, 1900, by E. H. Freeland presents a strong argument in favor of circumcision as a prophylactic in syphilis. The early and quite conclusive statistics of Jonathan Hutchison on the prevalence of syphilis among the Jews is quite in point. Of 272 venereal cases among those not Jews, 165 had syphilis and 107 gonorrhea; while among 58 Jews with venereal disease, 47 had gonorrhea and only 11 syphilis. These figures correspond with the general experience of those who treat a large number of venereal cases, namely, that gonorrhea is common among the circumcised, but syphilis is very much less frequent.

Freeland, as surgeon to the Peninsular and Oriental Steam Navigation Company, in a service of three years, saw no primary chancres among the Lascar crews, who being Mohammedans were

circumcised to a man. Among the Europeans and others in which this operation had not been performed, primary syphilitic sores were not uncommon. Other venereal diseases were common among the Lascars, showing that their morality was not essentially different from the others.

The writer deduces an argument based on the situation of the primary sore by three observers. The number of initial lesions observed was 898; of these, 659, or 73.3 per cent, were on the prepuce or in the furrow. He argues that all preputial chancres would have been prevented by circumcision. Unfortunately, in the statistics of these writers there is no separation between those occurring in the furrow and those upon the prepuce; hence it cannot be argued that the whole proportion of 73.3 per cent would have been prevented.

It is argued by the writer that the universal practice of circumcision would reduce the case incidence by some 49 per cent. This enormous reduction, however, does not represent the total good that would accrue, for every case is a potential focus of infection.

In the operation for circumcision, it is recommended that there should be a rather freer ablation of the skin and mucous membrane than is commonly made. This should be sufficient to obliterate the furrow, and at the same time a wedge-shaped piece of the frenum should always be removed. This prevents the edematous nodule that is so likely to form at this point, and also removes those folds which lie at the side of the frenum and which so frequently form an infection atrium.

LEPROSARIA IN THE UNITED STATES.

Late statistical studies show that the number of lepers in the United States, while not considerable, is still sufficient to make them deserving of some consideration. To brand an individual as a leper is to make him an outcast; modern society in this respect not differing from the middle ages. To state that one has consumption or syphilis will not alter his social status, but to say that he has leprosy is to put him in the same category with smallpox. Leprosy is not nearly as contagious as syphilis, and is probably not so much so nor as rapidly fatal as consumption. All are agreed that segregation as a means of stamping out leprosy is practically a failure. This has been shown by the experience of Norway, and especially by the efforts of the late Hawaiian government to stamp out leprosy by deporting all the lepers to an inaccessible island. In part the condi-

tions were unfavorable for segregation in the Sandwich Islands, because leprosy is there a domestic malady and is little feared by the natives, and cases of the disease are concealed as long as possible. Competent observers are of the opinion that segregation has been a failure in the islands, so far as stamping out the disease is concerned, there being now as great or even a greater number of lepers than there were twenty-five years ago.

The establishment of leprosaria is not for the purpose of segregating lepers in order that the community may be protected from the ravages of the disease, but rather for the purpose of making these unfortunates comfortable and preserving them from the effects of the social ostracism which is visited upon them because of their unfortunate condition.

It is difficult to say how many lepers there are now in the United States; certainly not less than five hundred, and perhaps a thousand. A few of these are native born, but the most of them are imported from Mexico, Japan, and Norway. It is possible that our new possessions may expose us to a greater accession of leprosy, which is an additional reason for considering the care of these unfortunates. The number of lepers in any State is scarcely sufficient to justify the erection of a separate institution. Leprosaria should consist of colonies similar to those which have been established for epileptics, in which those who are able to work could be usefully employed, and such institutions could be made nearly self-sustaining. All that would be required would be the purchase of the ground and the erection of necessary buildings. Residence in such institutions should not be enforced, but those having the disease doubtless would be glad to avail themselves of a comfortable home with medical attendance.

MIXTURES UNDER NEW NAMES.

The literature of medicine is being needlessly burdened with terms which are of no value. There is certainly no objection to the introduction of a new chemical compound, which of necessity must be given a proper name. The use of the chemical name would result in one of those polysyllabic productions which it is only possible to read where each syllable of a compound word is separated by a hyphen. Such a term as this should be shortened by adopting as a substitute some euphonious title which may represent one of the chief characteristics or the prominent physiological action of the substance.

Recently it has become increasingly common to mix various drugs in solution, and in varying proportion recrystallize, and give the resulting product a new label expressive of its actions or constituents, and exploit it as a new drug. Many of these substances are as devoid of personality as would be a mere mechanical mixture of several substances in a mortar. Of late, Germany has been especially prolific in the exploiting of such substances. One of the latest is acetopyrin, which is said to be a compound of antipyrin and acetyl salicylic acid, and which may be given in doses of from fifty to seventy-five grains. With this substance it was noted that the antipyrin prevented the development of the disagreeable effects of the salicylic acid upon the ears and the stomach, and with it the depressing effect of the antipyrin was absent. As might be supposed, the antipyrin effect of the drug was prominent. So far as we can see from the cases reported, the effects of acetopyrin are not very different from those of a powder containing a mixture of salicylic acid and antipyrin, which may conveniently be put up in a capsule of varying proportions to suit the indications in a particular case. These mixtures that are given special names to convey the impression that they are of some special value differing from the drugs they contain is adding not a little to an already overburdened materia medica, without supplying anything of value.

THE TREATMENT OF TETANUS.

So far the use of antitetanic serum in the treatment of tetanus has not met with success. In most cases it has been injected subcutaneously, but where the tetanus had already developed it seemed to have very little influence in delaying the progress of the disease. This led to its employment by injecting it into the subarachnoid space of the brain. The statistics of this latter application of the remedy are not favorable. On the whole, the treatment of developed tetanus by the antitetanic serum is not as favorable as the use of carbolic acid as employed in Italy.

As a prophylactic the antitetanic serum makes a splendid showing, and in wounds which are infected with street dirt, or a soil which is known to harbor tetanus bacilli, or especially with the sweepings of stables or horse manure, the antitetanic serum should be employed promptly as a prophylactic measure. A few cases of infection of laboratory students by virulent cultures of tetanus bacilli were saved by the prompt administration of antitetanic

serum. In each case some symptoms of tetanus developed, but in none were they of any gravity. Carbolic acid, so far as we are aware, has never been used as a prophylactic in these conditions, and it would probably not be very efficient because its effect would only last during its administration, while the immunizing effect of the serum extends over from two to six weeks. While the use of the antitetanic serum has been disappointing in the treatment of developed tetanus, its use as a prophylactic may result in an enormous reduction in the mortality of a disease which still plays too great a rôle as a cause of death after injuries and accidents.

AN EPIDEMIC OF ARSENICAL NEURITIS.

For some months it has been noted, in the Infirmary at Manchester, that cases diagnosticated as alcoholic peripheral neuritis have been remarkably frequent. A more careful study of these cases shows that they differ from the typical forms of peripheral neuritis due to alcohol. There has been a wide distribution of the disease in Manchester, so that it has been spoken of in the lay press as the "Manchester epidemic." A striking characteristic of the affection has been a pigmentation of the skin. It was observed especially among beer-drinkers, in whom alcohol neuritis is of infrequent occurrence. This has led to an analysis of the beer, and the poison seems to have been due to the use of "invert" sugar in its manufacture.

A correspondent of *The Lancet* of December 1, 1900, says that a similar epidemic has been observed in Liverpool. In the Infirmary for the Poor in that city, the average number of cases of neuritis has risen from thirteen to fifty-two. In the Liverpool epidemic there was also an association of pigmentation occurring with eruptions and soreness of the eyes.

In speaking of the matter editorially, *The Lancet* says that a very comprehensive investigation has been made, and certain specimens of brewing sugars were found to contain four parts of arsenic in ten thousand parts of sugar. The source of the arsenic is the sulphuric acid used in preparing the invert sugar. Ever since sulphuric acid has been made with arsenic pyrites, arsenic has been a common impurity of the acid. A possible source of the epidemic is believed to be the importation of large quantities of glucose from America, as such sources of supply had not been employed before the epidemic.

ABSTRACTS.

MEDICINE.

Pericarditis with Effusion.—

George G. Sears, in the *Boston Medical and Surgical Journal* of December 13, 1900, says that a number of conditions may simulate a collection of fluid in the pericardium. The greatest difficulty lies in distinguishing an accumulation of fluid from enlargement of the heart; in some instances this may be impossible, unless the case has come early under observation, and it has been possible to watch the gradual accumulation of fluid or to follow its fluctuations from day to day. This difficulty is due to the ambiguous character of the physical signs. An extension of the dulness beyond the apex beat generally marks the presence of a pericardial effusion, but this sign is far from conclusive, as it may be found in cases of uncomplicated cardiac enlargement. The lack of correspondence between the comparative strength of the radial pulse and the decided weakness of the impulse and sounds of the heart, whose percussion outlines apparently show a great increase in size, is also suggestive of the same condition. Three recent writers upon this subject describe the area of dulness as variously shaped. Roberts says that it assumes "a more or less triangular pyramidal, or more strictly speaking, pyriform or pear-shaped, outline, with its truncated or 'peaked' apex above." Ewart says it resembles a bag of fluid spreading out at the base, while Shattuck speaks of it as simply an extension in all directions of the normal heart dulness. The writer's experience is more in accord with that of Ewart than that of Shattuck, though he has never been able to mark out by percussion a pear-shaped outline. The most important single sign of pericardial effusion, distinguishing it from cardiac enlargement, is the angle made by the line bounding the right side of the pericardial dulness with that which marks the upper limit of hepatic flatness. No matter how large the heart, its percussion border is always a curved line whose lower end tends to approach the sternum so that the angle made by the outlines of the enlarged heart and the liver on the chest wall is an acute one, or at least never exceeds 90°. When the cardiohepatic angle is equal to a right angle, the chances are in favor of pericardial effusion.

Secondary signs, due to pressure or displacement, are only cor-

roborative. A quadrilateral area of dulness in the lower left back was present in a number of cases, but this is also present in marked cardiac enlargement. Pulsus paradoxus occurs in pericardial effusions as in other conditions. It is not always present when the quantity of fluid is large, and in a few cases in which the exudate was small it was well marked. The accentuation of the pulmonic second sound occurred in many of the writer's cases early in the disease. It should be taken into consideration when it occurs in one of the diseases liable to cardiac accidents.

The writer discusses aspiration of the pericardial sac, stating that his experience with it has been disappointing. No harm has ever resulted, and the marked relief which follows the withdrawal of a few ounces of fluid justifies the procedure. The dry tap frequently results even when it is known that a considerable amount of effusion exists. This has been explained by the presence of folliculi in the exudate, or by the fact that the fluid was contained in trabeculæ. The site of the puncture has an important bearing on the consequences of aspiration, but it is questionable if one position can be selected as better than another, so much depends on the position of the heart in its relation to the pericardial walls, which is not always constant. In the writer's operations the fourth right space was used four times with one successful result; the fourth left space once without result; the fifth left space outside the apex was no more successful on the one occasion it was used, but from the fifth right space three drachms of fluid was obtained.

Statistics of Thyroid Operations.—

Lincoln Davis, in the *Boston Medical and Surgical Journal* of December 27, 1900, has an interesting study of the collected statistics of thyroid operations. The first group of figures deals with simple goitres and shows a very marked reduction in the mortality in recent years. In seventy operations before 1850 the mortality was 40 per cent, and in 400 operations, between 1850 and 1883, the mortality was less than 15 per cent. In the period from 1883 to the present, 6000 operations have given a mortality of only 3 per cent. Kocher in 1895 reported one thousand operations; of these, 870 were benign tumors, with a mortality of 1.37 per cent. Bruns has reported 400 operations for goitre, dating back to 1883, with a mortality of 1.5 per cent. He had no deaths in his last 150 cases. Girard reported 545 operations with a mortality of 1.1 per cent. Socin had 200 cases with one death, and Kronlein reported 200 cases without a single death. The following table is taken from

Reverdin's collected cases of 3408 operations, among which there were 118 deaths, distributed as follows:

	Deaths.	Percentage of deaths.
137 total extirpations	26	18.98
1212 partial extirpations	42	3.46
1276 enucleations	10	.78
345 resections	23	6.66
438 other methods	17	3.88

Among the postoperative complications is almost invariably a marked elevation of temperature; this was absent in only three of 249 cases. Notwithstanding this, the healing of the wound is nearly perfect. It is sometimes spoken of as thyroid fever, and is ascribed to the thyroid secretions set free at the time of operation. Myxedema as a complication is found to be present in one-fourth of all the cases of early thyroidectomy, while in those in which the gland is only partially removed, it is present in one per cent. At the present, total thyroidectomy has been practically abandoned, except for malignant disease. Tetany occurred five times in 137 cases of total thyroidectomy, but in the partial excisions of the gland it occurred in less than 0.5 per cent. A case of tetany followed ligature of the four thyroid arteries. Disturbances of phonation as a result of injury to the recurrent laryngeal nerves occurred in 4.7 per cent of 1212 partial extirpations, and only eleven times in 1276 enucleations. Recurrence is not uncommon since the operation of total extirpation has been proscribed. Recurrence has been noted in as high as 20 per cent, although statistics of many of the leading operators show a much smaller proportion.

The surgical treatment of malignant goitre has not resulted in the improvement in mortality-rate which has been shown in simple goitre. The death-rate varies from 25 to 33 per cent. Sarcoma is less frequent than carcinoma, but the results of operation are even more unfavorable.

In the surgical treatment of exophthalmic goitre there has also not been the improvement in the mortality-rate, nor have the results been nearly as favorable as in simple goitre. Schultz, in May, 1900, collected 319 operations, of which 51 per cent were cured; 28 per cent improved; 4 per cent unimproved; 13 per cent died. A considerable number of sudden deaths, either during or after operation, have been reported. Kocher is the principal exponent of ligature of thyroid arteries. An examination of the figures shows that the results, so far as mortality and improvement are concerned, are

better from the ligation of the arteries than from extirpation of part of the gland. The best figures quoted in the operative treatment of this disease are by Rydigier, who has tied all four arteries in twenty-four cases, with improvement in twenty. Koch, in forty-nine cases, tied only three of the arteries, and had five deaths.

A Case of Myasthenia Gravis.—

W. E. Paul, in the *Boston Medical and Surgical Journal* of December 20, 1900, reports the case of an American woman 23 years of age whose family history was negative excepting for a maternal uncle who had been insane. Previous history was negative, with the exception of certain fainting spells which occurred when the patient was about 16 years of age. She had been married three years, and had had an operation for the removal of a cystic tumor of the breast. One year after the operation she gave birth to a healthy boy after a retarded but normal labor with no complications. Eight months after coming under observation she suddenly found that she was unable to rise when stooping over, and had to be assisted. At this time ascending stairs became difficult, and on boarding a car she could not lift her feet without assistance. In all of these instances the loss of muscular power was of brief duration. She could usually walk on a level, but stepping up was frequently difficult. In spite of the muscular weakness, she attended to her housekeeping and cared for her baby. Transient weakness in the arms next appeared, but there was no sensory disturbance. In playing the piano both hands tired easily; sewing became increasingly difficult. The attacks of weakness became more frequent, but were of short duration, and usually came on after the muscles had been used. She not infrequently fell backward on the stairs. Transient diplopia occurred in the course of the disease, and it was noticed at times that the head was thrown back, indicating ptosis. There was a lack of expression in the face, and the voice was nasal and somewhat indistinct. Swallowing was somewhat awkward, and in the later stages this difficulty became serious. The symptoms became more prominent, and involved on several occasions nearly all of the voluntary muscular system. One evening, six months before death, after climbing the stairs safely, she fell to the floor and was unable to move or speak, but finally succeeded in attracting attention. Five weeks before death she fell helpless at the top of the stairs, but after a few minutes she regained control of her muscles; some drowsiness followed, but no loss of consciousness. The first attack of choking occurred six months

before death. There was no numbness or prickling, the appetite and digestion were good, the disposition was unaltered. The sphincters were unaffected, and there were no spasmodic movements or tenderness. Emotional excitement aggravated the disturbance. During the last few months of life the attacks of weakness became more frequent and profound, yet when seen in the intervals she gave no impression of serious illness. The ocular symptoms increased, but there were remissions with apparent normal muscular balance. Exposure to cold did not aggravate the condition as a rule. Three days before death she was able to try on a dress, and two days before she sat in a chair and swallowed food without trouble. Death occurred eighteen months after the first symptoms.

The examination made eight months after the first symptoms showed no marked weakness of the voluntary muscles. She took food, swallowed water, and used her ocular and facial muscles with no sign of paresis. No change in sensation, touch, or pain could be discovered. No tenderness could be detected over the muscles or nerves. Vision and hearing were undisturbed, and the fundus was normal. The visual field was not limited, and there was no diplopia. Romberg's symptom was absent. The knee-jerks were both normal; the pupils were clear and reacted to light and accommodation. The urine was 1.014 and contained a trace of albumin. No electrical examination was made.

Macroscopically no changes were noted in the nervous system. A microscopical examination will be made of the organs and will be reported upon later.

Prolonged Fevers of Obscure Origin.—

R. B. Preble, in the *Journal of the American Medical Association* of December 8, 1900, says that both the malarial organism and that of tuberculosis may cause prolonged fevers of obscure origin because the localization of the organism is obscure, or as in the case of malaria when it occurs where the malarial parasite is not endemic. Recurrent fever occurs also in cases of pseudoleukemia. His paper, however, is limited to that group of cases which Leube calls "kryptogenetic sepsis." Sepsis is too commonly considered within the province of the surgeon, whereas the serious forms of sepsis are more common in medical practice. A concise definition of sepsis, septicemia, and septic pyemia is difficult. By these terms is understood the infection and intoxication of the organism as a whole, by one of a large number of bacteria and their chemical products. They are characterized by an irregular clinical course, and the

infection atrium is unknown during life and often undiscovered after death.

Owing to the varying type of microorganism, the different resistance of patients, and the liability of the infection to involve separate organs or groups of organs, the clinical manifestations are very difficult of classification. A convenient division is to recognize two main groups: (1) The systemic group, in which the organism as a whole suffers; (2) the focal group, in which some organ or set of organs furnishes the bulk of clinical symptoms. The latter division may be conveniently divided into (*a*) cardiac cases; (*b*) pulmonary cases; (*c*) gastrointestinal cases; (*d*) hepatic cases; (*e*) renal cases; (*f*) osteal cases and articular cases; (*g*) dermal cases; (*h*) hematolytic cases; (*i*) nervous cases.

In the systemic type the onset may be gradual, resembling that of typhoid with depression. Usually the onset is sharp, with single or repeated chills, and the disturbance common to acute fevers. The temperature is often very irregular, but it may have a typhoid range or may be intermittent like that of malaria. The pulse is usually rapid before the temperature, and there is as a rule much depression and weakness from the beginning. Physical examination is generally negative, excepting an enlarged spleen such as is seen in most infectious diseases. There is a rapid reduction in hemoglobin and the number of red corpuscles; the leucocytes may be increased, diminished, or normal in number. The Widal reaction is absent, and the diazo-reaction in the urine is frequently present and marked.

Diagnosis, while simple in surgical cases, is difficult in the absence of a distinct infection atrium. The diagnosis is based mainly upon exclusion of the typical infectious processes. A distinct advance has been made in the diagnosis of these infections of late years, as they were formerly classed under typhoid, malaria, etc. Repeated examinations of the blood, showing an absence of the malarial parasite, exclude that infection, and the absence of the Widal and diazo-reactions excludes typhoid fever.

Elimination of the Diseased Appendix from the General Peritoneal Cavity.—

A. J. Ochsner, in the *Chicago Medical Recorder* for November, 1900, reports the results of his work upon the appendix. The cases number 248, treated in the Augustana Hospital, of which all but eight recovered. A large number of the cases were sent to the hospital in an apparently hopeless condition. Twelve entered the

hospital suffering from diffuse peritonitis, and of these six died. One hundred and forty-eight cases suffered from recurrent appendicitis, being operated upon during the interval or at the beginning of a recurrent attack, while the infectious materials were still confined to the appendix; of these, none died. In treating appendicitis, Ochsner follows the rule laid down by Richardson, "Too late for an early operation, and too early for a late operation." He believes that if patients can be seen within the first twelve hours, while the inflammation is confined to the appendix, an operation may be done safely. If, however, there has been an extension of the inflammation, or there is reason to believe that the appendix is gangrenous, or an abscess has formed, the patient is put to bed, nothing but plain water is given, and absolute quiet is enjoined. If all cathartics and medicines are kept from the patient, the omentum will wall off the infective material and prevent that general infection of the peritoneal cavity which so frequently leads to a fatal issue. The observations upon which this view is based are 248 operated cases. Those surgeons who contend for immediate operation in all cases criticize those which are reported as often being errors in diagnosis. Such cannot be brought against Ochsner's cases, as they were all operated upon and the conditions within the abdominal cavity actually determined. They certainly form a group of cases which it is difficult to dispose of on the theory that temporizing is a dangerous proceeding in this disease. It is necessary to call attention to the emphasis laid by Dr. Ochsner on the withholding of all food from the patient. Unless this is done the peristaltic action of the intestines will extend the infection all over the abdomen, and this will prevent the walling off of the abscess which is certain to take place if the patient is kept absolutely quiet and all food withheld. Unless this is done, the rule of Dr. Ochsner would evidently not apply.

Eosinophilia in Trichinosis.—

H. C. Gordinier, in the *Medical News* of December 22, 1900, reports two cases of this disease, in a father and son. The illness began in the latter about November 1, 1899. The face was swollen, and there was pain in the eyeballs; he was breathless on exertion, and the feet felt heavy and swollen. There was fever and chills and anorexia, but no history of any gastrointestinal disturbance. It was stated that large quantities of *blutwurst* had been eaten by both patients. On admission to the hospital, the patient's weight was 100 pounds, he was anemic, and there was swelling over

the eyebrows and malar prominences. The tongue was heavily coated and the mucous surfaces pale. The muscles were not sore, nor were the nerve trunks tender. The heart and lungs, as well as the abdomen, were negative. Nothing abnormal was noted in the nervous symptoms except a slight diminution in the patellar reflexes. The pulse was regularly 110, and the temperature 102°. The urine presented a distinct diazo-reaction, but was otherwise normal. Examination of the blood showed an enormous increase of eosinophiles, which were easily recognized at a glance beneath the microscope in freshly drawn blood. A differential count of 1000 leucocytes, after staining with Ehrlich's triacid mixture, gave the following results: Eosinophiles, 773; small lymphocytes, 124; large lymphocytes and transitionals, 49; polymorphonuclear leucocytes, 54. Examination of the muscular tissue showed the non-encapsulated trichinæ.

The second case, father of the first, was 42 years of age, a painter by occupation, who had not been ill excepting for an attack of lead colic years before. He, like the boy, had been consuming large quantities of *blutwurst*. The symptoms were very similar to those in the preceding case, and a differential count of 500 leucocytes gave the following results: Polymorphonuclear, 49 per cent; small mononuclear, 18 per cent; large mononuclear, 1.8 per cent; and eosinophiles, 31.9 per cent.

T. R. Brown, of the Johns Hopkins Hospital, was the first to point out the relation of eosinophilia to trichinosis. Since then, presumptive diagnosis of this condition has been made nineteen times, and each case confirmed by finding the trichinæ in the muscles. In a single fatal case no eosinophiles were found in the peripheral circulation, though they were found in the muscular tissue after death. It is possible that in fatal cases of this disease, shortly before death, there may be a marked diminution of the eosinophilia. Eosinophilia is of considerable importance in the diagnosis of trichinosis; while it occurs in leukemia, asthma, chronic eczema, pemphigus, prurigo, psoriasis, and in some cases of intestinal parasites, it does not occur in any disease the symptoms of which resemble trichinosis.

Leprosy in Cochin China.—

M. E. Geauselme, in *La Presse Médicale* of January 5, 1901, gives an account of his observations of leprosy during extensive journeys through Tongking, Siam, Annam, and the Indo-Chinese peninsula and the peninsula of Malacca. Several maps are given, and with

them the number of lepers in each department. A direct relation is noted between the density of population and the prevalence of leprosy; hence, as a larger number of people live upon the coast and along the rivers, it is these parts which contain the greater number of cases of leprosy. There are about 3580 cases in Cochin China, this number, of course, including only those which are more or less known, and does not include those cases in which there are only occasional macules or slight troubles of sensibility. These pass for a long time in the population before they are recognized as lepers.

The writer's study of leprosy confirms the modern view, which holds that this disease is only distributed by direct contagion, and that with care one may live in a leper colony for years without contracting the disease. It is essentially a disease distributed by the most intimate personal contact, filthy habits and overcrowding especially contributing to this end. In the village of Ban-Hatsao, composed of about sixty inhabitants, there were found five victims of the disease, which had existed for twenty years. The first case was noted in a Chinaman born in the village, whose father had come from the central part of the Chinese empire. This case of leprosy was isolated. Three years later another Chinaman, also born in the village, whose father came from the province of Quang-si in China, was recognized as a leper. This case is still living and was found to be affected with a maculo-anesthetic form of very slow progress. The first case was married to a native Laotien. He communicated the leprosy to his wife, and to a son the result of a preceding marriage. This young man presented remarkable ulcerations, the leprosy largely affecting the nervous system. The first Chinaman infected his niece. The oldest inhabitants of the village cannot remember a single case of leprosy before the arrival of the Chinaman.

Astereognosis.—

F. X. Dercum, in the *Journal of Nervous and Mental Diseases* for November, 1900, says that this subject has not yet received the attention which it deserves, and he presents us with a summary of the results obtained in 114 cases of nervous diseases. Forty-one cases of hemiplegia were studied, the results obtained being always compared with those of the healthy hand. In twenty cases marked astereognosis was present, it being partial in seven and complete in thirteen cases. The thirteen cases in which it was completely lost, studied in detail, show that the tactile sense was completely lost in only three, and was more or less preserved in ten. It was completely lost in six, and partially preserved in only four. In these ten cases

the temperature sense was preserved in five and diminished in five; it was lost in one. The pressure sense was preserved in six, diminished in four, and lost in one. The pain sense was preserved in five, diminished in five, and lost in one. Spacing sense, on the other hand, revealed a very great degree of loss. Of the thirteen cases of total astereognosis, the spacing sense was lost in ten, preserved in one, diminished in one, and not satisfactorily tested in one because of aphasia. In four of the thirteen cases, all of the cutaneous senses were preserved except the spacing sense, and to this loss the astereognosis seemed to be due.

Of five cases of diplegia of childhood, in two the stereognostic sense was markedly defective. In sixteen cases of locomotor ataxia this symptom was found to exist in five cases in both hands; it was total in only three, and partial in two. The spacing sense was much diminished in two and entirely lost in one. It was found in two out of three cases of ataxic paraplegia. In two cases of multiple neuritis it was found in one.

The writer comes to the conclusion that the loss or impairment of the spacing sense is the most important factor in detecting astereognosis, but the latter may sometimes be present with a perfectly normal spacing sense. This was noticed, however, in only one case of hemiplegia, in which there was an impairment of the knowledge of the position of the fingers, and ataxia of movement. The mere preservation of the ability to receive tactile impressions, and the preservation of the pressure, temperature, and pain sense, is insufficient to prevent stereognostic loss.

The writer is unable to draw definite conclusions as to the value of this symptom in clinical diagnosis, as it may be dependent upon nerve, cord, or brain involvement. If it occurs in the absence of signs pointing to peripheral or cord lesions, it justifies the diagnosis of a brain or cortical involvement; indeed, it points with some degree of certainty to the posterior portion of the superior parietal lobule.

Aneurism of the Aorta Treated by Permanent Wire and Galvanism.—G. L. Hunner, in the *Bulletin of the Johns Hopkins Hospital* for November, 1900, says that aneurism of the aorta is usually a surgical disease. The gelatin method has met with some success in the wards of the Johns Hopkins Hospital, and it is deserving of further study. Charles H. Moore was the first who attempted the cure of aneurism of the aorta by the insertion of a permanent foreign body. His early cases were unsuccessful, mostly due to sepsis. Since then,

Corradi effected a marked improvement by adding electrolysis to Moore's method. The technique of the operation is difficult, and is only to be secured after considerable experimenting with the wire and batteries. The wire is introduced through a hollow needle insulated from the surrounding tissues by a coating of lacquer. The selection of a suitable wire for the case to be treated is important, as much depends upon the amount of fibrin whipped from the blood. A small quantity of fine wire producing a good spring should be selected, and the wire should be of such an amount and material as not to interfere seriously with contraction of the sac. The wire is corroded by the electric current, and this tends to rapid formation of clot. From ten to twenty feet of wire is employed. Steel wire makes a better clot than pure silver, but steel is difficult to manipulate, and, theoretically at least, it would interfere with the contraction of the sac.

The writer has made a number of experiments with flasks, which were used to imitate the sac of an aneurism. The wire was introduced through the cork, and the manner in which it coiled showed how it would behave in the sac of an aneurism. It was found that a silver alloy of drawn wire composed of seventy-five parts of copper to one thousand parts takes a closer circular coil than steel, is pliant, and there is less danger of penetrating the aneurism wall, should it come in contact with a thin part. It is more easily passed through the needle than pure silver, as it will not kink. It is acted upon by the electric current, forming a rougher surface than pure silver, and hence aids in the formation of clot. It is a good conductor of the electric current.

The writer gives a *résumé* of the cases so far reported. In nine cases, or 39 per cent of those operated, there was an amelioration of symptoms and life was prolonged. Its greatest drawback is the difficulty of accurate diagnosis. The cases so far reported were none of them favorable for operation, but were almost without exception considered hopeless. The record, however, is impressive, because even with the crude appliances so far available and the limited study given the subject, together with the unfavorable character of the cases, the results have on the whole been good.

The Effect of the Roentgen Rays upon the Skin.—

Robert Kienböck, in the *Wiener Klinische Wochenschrift* of December 13, 1900, has an exceedingly interesting study of the effect of the Roentgen rays upon the skin and the manner in which they cause inflammation and gangrene, as well as a study of their

possible therapeutic effects. He gives a table of the cases so far reported, in which severe burning or sloughing of the skin was caused by the Roentgen rays. His chief contention is that the effect upon the skin is not due to the electrical induction. The arguments advanced in favor of this seem conclusive, though it is still held by some observers that electrical induction causes the trouble. His arguments in brief are that the character of the tube has something to do with causing the inflammation of the skin. For example, a very hard or very soft tube produces no Roentgen rays; the hard tube gives rays that penetrate deeply, but does not furnish a marked contrast between the hard and soft tissues. A tube of medium softness gives a very good contrast in the tissues, penetrates well, but at the same time has more effect upon the skin than has the hard tube. A very soft tube with low voltage gives abundant Roentgen rays, but they do not penetrate deeply, and hence do not give a good contrast; the latter affects the skin deeply. The induction from the connections of the tube is quite as marked as within the focus of the tube itself, and yet it is only there that the trophic effects are noted. In the periphery of the surface on which the Roentgen rays are brought in contact there is only a loss of hair; as we pass toward the focus there is successive inflammation, until in the very center we have the development of sloughing. That the electrical induction has nothing to do with the development of inflammation of the skin is shown by the fact that rubber gloves, which are non-conductors for electricity, but have no effect in preventing the passage of the Roentgen rays, are also of no value in preventing inflammation of the skin.

Cholelithiasis Having Typhoid Bacilli Without Typhoid Fever.—

C. W. Mitchel, in the *Maryland Medical Journal* for January, 1901, reports the case of a woman 33 years of age who after a hearty supper was taken with severe pain in the umbilical region. There was only moderate elevation of temperature, and no pain radiating along the bile-bucts; nor did the pain in the umbilical region suddenly subside. Jaundice was not observed. Constipation was present, but the stools when passed were of normal color. All symptoms subsided gradually. Thirteen months later a similar attack occurred, ushered in with chilliness, and a slight jaundice raised the suspicion of a biliary calculus. Three months later the fourth attack occurred, which was of longer duration and greater severity, followed by decided jaundice. After this the attacks became more frequent, the stools putty-colored and finally becoming

almost white; the jaundice was intense and of longer duration. At no time was there a sudden cessation of pain, nor did the most careful inspection of stools reveal the passage of stones. The patient gradually lost strength, nausea became a constant symptom, and the jaundice was intense, associated with intolerable itching. The liver was now somewhat enlarged and the spleen palpable. Operation was finally undertaken, and a large non-faceted stone was found tightly fixed in the common duct just at its junction with the duodenum. Cultures were made from the contents of the common duct, which revealed typical typhoid bacilli. The blood of the patient, diluted one to fifty, gave a distinct typhoid reaction with a known typhoid bacillus, and also with the organism isolated from the patient's common duct.

The reporter is quite confident that the patient never had typhoid fever, but he looks upon the presence of the bacilli in the common duct as a local infection. The recovery after operation was rapid and uneventful, the jaundice, however, clearing up with extreme slowness.

Examination of the Ears of Four Hundred and Forty Schoolchildren.—

H. O. Reik, in the *Johns Hopkins Hospital Bulletin* for December, 1900, gives carefully tabulated results of the examination of 440 schoolchildren taken from a school located in a healthy and prosperous community. Eye examinations have been thought advisable in some schools for a considerable time, but the ear has not had due consideration. It is quite as important an organ as the eye, and often suffers from slight defects, which if not appreciated by the parents or guardians may lead to impairment of hearing. The tests were made with the watch, whispering and conversational tone, acoumeter, and the tone limits attained by forks and the Galton whistle. Forty-five were found to have deficiency in hearing, thirteen of these being due simply to an accumulation of cerumen in the external auditory canal. In the remaining thirty-two instances the faulty hearing was the result either of early or present abnormal conditions of the ear, nose, or throat requiring attention. There were two cases of chronic otorrhea, six of adenoids, seven of catarrhal otitis media, one of obstructed Eustachian tubes, eight showed scar tissue in the tympanic membrane, the result of former inflammatory trouble, fourteen had hypertrophied tonsils, twenty had nasal trouble, one a bifid uvula, and one a cleft palate.

It is surprising what an amount of ear trouble was detected by the writer in 440 supposedly normal schoolchildren. The majority

of the conditions he mentions were remediable. We may well ask ourselves what proportion of impaired hearing in middle life is due to similar unrecognized defects in childhood.

The writer regards the tone limits as laid down by Deuch, of 16 vibrations per second to 32,500 vibrations per second, as not correct, particularly as applied to children. There seems to be a progressive diminution in the ability to hear high tones as age advances. He makes the statement that some young persons can hear tones of 100,000 vibrations per second. His examination of the external ear confirms Hrdlicka's thorough study made in the New York Juvenile Asylum that many abnormalities in the ear noted as stigmata of degeneration can be found among perfectly normal persons, and that they frequently result from malnutrition and do not indicate inferiority any more than would a pale skin after a hemorrhage or so many scars after wounds. Reik in his examination found the same abnormalities present in normal healthy schoolchildren in almost the same proportion that they were found among white children of the asylum. Of the entire number 113 had abnormalities.

Relative Importance of Muscular and Valvular Lesions in Diseases of the Heart.—

S. Solis-Cohen, in the *Journal of the American Medical Association* of January 12, 1901, opened a symposium on the diagnosis and prognosis of cardiac lesions in the Section of Practice of Medicine at the last meeting of the American Medical Association. In the great majority of cases of chronic disease of the heart, the exact state and nature of the valvular lesion, while always to be taken into consideration, is of less importance from the standpoint of treatment and prognosis than the condition of the cardiac muscle. The most important exception to this general rule is in the case of mitral stenosis with great narrowing; aconite is often of use to reduce the excessive muscular effort, even when compensatory hypertrophy is not established. Many cases are found in which no appreciable alteration in the valves can be detected during life or after death, which nevertheless present marked signs of cardiac incompetence. The symptoms and physical signs of cardiac myopathy are inconstant, and in the early history of the case may be slight. In the absence of valvular lesions, intermittence or irregularities of the pulse and the apex beat, disturbance of rhythm, the recurrent pain referred to the precordium in non-neuropathic persons, are the principal local symptoms calling

attention to disease in the cardiac muscle. Tinnitus, vertigo, dyspnea, venous dilatation, visceral congestion, edema, and other evidences of circulatory disturbance may be slight and escape attention until sought for. There is usually impurity or weakness of the first sound of the heart, with approximation of the two sounds in quality or relative accentuation of the second sound. Other than the general diagnosis of disease of the myocardium, there is not yet sufficient knowledge of clinical signs to permit of recognition before death of the pathological nature of the lesion.

Heredity in Diabetes Mellitus.—

J. H. Pleasants, in the *Johns Hopkins Hospital Bulletin* for December, 1900, reports six cases of diabetes mellitus in a single family, occurring in three generations. That heredity has long been recognized as a factor in this disease is shown by the fact that the first references to it in the literature were in 1696. In 1798 Storer called attention to what he termed "mild habitual or family diabetes." Modern writers place hereditary incidence at from 27 to 5 per cent, the variation probably being due to the different character of the patients who furnish statistics. He is of the opinion that the importance of heredity in this disease has been underestimated. The disease often occurs in an uncle, aunt, or cousin, while the parents escape. In the same way a grandparent may be diabetic while the parent escapes. When successive generations are affected there is a tendency for the disease to develop at a progressively earlier age. When more than two members in the same generation are diabetic there is a tendency for the disease to appear at approximately the same period of life. Hereditary diabetes developing in the first two decades of life is often of a severe character, while the cases developing later in life are generally of a mild type. In a certain number of cases the disease has appeared in the children prior to its appearance in the parents. There is frequently a neuropathic tendency in diabetic families. Cases are recorded in which several children were diabetic, while the others suffered from various psychoses. Obesity is often a characteristic of families in which diabetes occurs.

The Heart Reflex.—

Albert Abrams, in the *Medical Record* of January 5, 1901, applies the above term to a contraction of the myocardium which is observed when the precordial region is vigorously rubbed with a blunt instrument. The contraction is observed with the aid of the Roentgen

rays and a fluorescent screen. It is best seen in those whose chest walls are thin and who have comparatively little fat. The contraction lasts about two minutes and varies very much in different cases; in some persons it is scarcely perceptible, while in other individuals the recession of the border of the heart may be fully an inch. In the earlier observations of the writer an ether spray was used over the precordial region, but since then he has found that simple rubbing with the tip of a rubber lead-pencil is sufficient to produce the contraction. The more vigorous the friction, other things being equal, the greater the amount of contraction. In individuals with dilated hearts the reflex is marked and of much longer duration than in healthy organs.

The writer has also observed a dilatation of the lungs which takes place upon vigorous cutaneous friction, and he advances the view that possibly the value of the Schott method in the treatment of heart troubles may be due to vigorous friction which accompanies the baths rather than to their peculiar saline constituents. He has obtained practically the same results in heart trouble by simply immersing the patient in an ordinary warm bath and then administering vigorous friction of the skin with the ordinary hand rubbers sold in the shops. From the diagnostic standpoint the greatest value of the test is in differentiating dilatation of the heart from precordial effusion.

Fungous Disease of the Ear.—

W. K. Hatch and R. Row, in *The Lancet* of December 1, 1900, have collected all the cases that have occurred in one of the larger hospitals in Bombay during the month of October, 1899. In each case the diagnosis was verified by microscopic examination, and in several cases cultures were made. Diseases of the internal auditory meatus are very common in Bombay, and the condition is generally looked upon as a furunculosis. The writers are convinced that in most cases the disease is really aspergillosis. In only one of their cases was there preexisting disease of the ear, that patient having a perforation. The symptoms of fungous disease of the ear vary from slight deafness and pain to those in which the suffering is very great and the loss of hearing marked. A feeling of stuffiness is complained of, but this varies with the amount of obstruction to the canal. Occasionally a view of the tympanum showing red patches upon its surface without signs of inflammation may be obtained. The cases may be divided into dry and moist; in the latter more or less eczema is present. In the dry form there may be pain and

loss of hearing, but there is no discharge. Distributed among the epithelial cells and secretions of the canal are particles of a dark color. After removal of the plugs the canal is found to be reddened, sometimes dry, sometimes moist, and often ulcerated.

Myositis Ossificans Traumatica.—

Robert Grünbaum reported to the Wiener Medicinische Club (*Wiener Klinische Rundschau*, Dec. 16, 1900) the case of a fireman 54 years of age who received a heavy blow upon the front of the right thigh. There was no injury to the skin and only slight swelling. On the following day an ecchymosis was noted, and there was an increase in the swelling. Cold compresses were applied. Later stiffness was noted in the right knee. After three weeks the swelling was firmer. A swelling was found in the middle of the thigh, over which the skin was quite normal. The tumor was about seven inches long, two and a half wide, and was of bone-like consistence, and evidently contained in the muscular fibers of the quadriceps. The surface of the tumor was rough, nodular, and upon pressure was slightly painful. It could be moved upon the femur. A diagnosis of myositis ossificans was made, and a Roentgen ray picture seemed to confirm this diagnosis, as it revealed the femur with its periosteal covering intact. General treatment such as baths and gymnastics showed no decrease of the tumor, but lessened the tenderness and increased the extent to which the knee could be moved. In discussing the pathology of the affection the reporter stated that he believed it was a tumor and not a mere inflammation of the muscle.

A True Case of Word Deafness.—

O. Veraguth, in the *Deutsche Zeitschrift für Nervenheilkunde*, Bd. xvii, Heft 2 u. 4, reports an interesting history of a patient who during the year preceding his death was subject to numerous attacks of transient sensory aphasia. In the intervals of his attacks there was no paraphasia, the language being correct, but he was incapable of comprehending what was said to him. The examination of the ears was negative. At the autopsy a general atrophy of the brain was noted, with especial reduction of the size of the superior temporal convolutions on the left side; also of the operculum and of the inferior frontal convolution. The author reviews the cases so far reported of pure word deafness, and discusses the necessity of invoking a bilateral affection to explain this form of aphasia. The case demonstrates that word deafness is essentially of cortical origin.

Differential Diagnosis of Alcoholic and Arsenical Neuritis.—

The recent epidemic of arsenical neuritis in England has afforded an opportunity for the differential study of peripheral neuritis due to alcohol and that caused by arsenic. J. S. Bury, in the *British Medical Journal* of December 8, 1900, says that hyperesthesia of the skin and muscles, while not always absent in alcoholic neuritis, is much more constant and generally severe in cases due to arsenic. The vasomotor phenomena are also very striking in the arsenical cases and are very rarely present in the alcoholic. In the present epidemic ataxia has been frequently noted in the arsenical cases, but it is comparatively infrequent in the alcoholic. In the treatment of the infection, Bury insists upon rest in bed, and under no circumstances should there be massage of the affected limbs. The pain should be relieved by antipyrin, phenacetine, or morphine, if necessary. Warm fomentations are also useful in relieving the pains. Sodium salicylate and potassium iodide are of some service. Strychnine should not be given early in the affection.

Gonorrheal Ulcerative Endocarditis.—

A. J. Lartigau, in the *American Journal of the Medical Sciences* for January, 1901, reports a recent case in which the proof of the gonococcal origin of an endocarditis is complete. Inflammation of gonococcal origin, with involvement of joints, the peritoneum, and myocardium, has of late been comparatively frequent in the literature, but the cases so far reported in which cultures have been made which absolutely excluded all other microorganisms except the gonococcus are comparatively rare, according to the author not exceeding six cases. A careful study of these, together with the writer's own case, justifies the conclusion that gonococcal urethritis may be the starting-point for a fatal septicemia induced by a pure infection with the gonococcus. Endocarditis and urethritis are occasional complications of such an infectious disease. The endocardial process may be incited by the gonococcus in the absence of any other germs.

Suppuration Due to the Diphtheria Bacillus.—

Adolf Hala, in the *Wiener Klinische Rundschau* of December 9, 1900, publishes a case of what he regards as suppuration due to the diphtheria bacillus. The trouble occurred in an anemic patient who presented a small tumor at the outer angle of the eye. The skin over the tumor was dark-red and smooth, and the mass presented

distinct fluctuation. The tissue surrounding the tumor was infiltrated and firm, but there was no evidence of any injury to the skin. The glands at the angle of the jaw on the affected side were swollen; the antrum of Highmore and the nose upon the same side were not involved. The tumor on the eyelid was incised and discharged a chocolate-colored mass, accompanied by a few drops of greenish-yellow pus. The tissues of the tumor were necrotic. Microorganisms of the pus upon cultivation gave all the characteristic cultural and staining reactions of the diphtheria bacillus.

SURGERY.

Hepatectomy for Echinococcus Cyst.—

R. S. Fowler reported to the Brooklyn Surgical Society (*Brooklyn Medical Journal*, January, 1901) the case of an Italian woman 28 years of age who came to this country three years ago. With trifling exceptions she had enjoyed good health until three months before coming under observation, when she noticed a gradually increasing dragging pain in the left side. Soon after she discovered a tumor in the region of the umbilicus, which was tender and movable. There was no rapid increase in size, but the pain, which was not constant at first, became continuous and more severe. The tumor was freely movable and apparently had no connection with the uterus or its appendages. The liver was of normal size and in normal position. The colon could be traced throughout its entire course, the one peculiarity being that the transverse portion seemed a little higher than normal. There was no dulness in any part of the abdominal cavity. The right kidney was larger than normal and normally situated. The left kidney could not be palpated in any position of the body. The tumor was the size of two fists, and in front of it lay the transverse colon. It was small in its lower part, elastic to the feel, and in its upper part solid. It felt and acted like a floating cystic kidney. Malignant disease was excluded, as there was no loss of weight or strength. The tumor could not be traced to the liver in the neighborhood of the gall-bladder, and it did not perceptibly move with respiration. It was noted that the colon moved with the tumor. A provisional diagnosis of floating cystic kidney was made upon the following facts: The tumor did not move with respiration; it was of the size and shape of a cystic kidney; the colon was in front of it; it was freely movable to all

parts of the abdominal cavity; and the left kidney could not be palpated in any position of the body.

A four-inch median incision was carried through the abdominal wall and the peritoneal cavity opened. The colon presented in the incision and was pushed downward, this exposing the tumor and also the left lobe of the liver. It was then apparent that the trouble was an echinococcus cyst of the under surface of the left lobe of the liver, which had dragged the left lobe downward, causing a partially floating liver. The lower rounded portion of the cyst had become adherent to the anterior layer of the lesser omentum and to the colon in such a manner as to cause the colon to overlie it. The adhesions were easily separated and the tumor brought out of the abdomen. Its attachments to the liver were approximately six by two inches. The liver substance was cut through with a thermo-cautery and the cyst removed entire without rupturing. One point on the liver surface bled rather profusely, probably due to a severing of one of the larger branches of the portal vein. A suture served to arrest this hemorrhage, and the wound in the liver was packed with gauze. The round ligament was shortened and stitched to the abdominal wall with catgut, thus fixing the liver in its proper place. Gauze was packed between the liver and the diaphragm to support the organ and produce adhesions. Half of the packing was removed on the second day and the remainder one day later. The patient was discharged with a small sinus, which soon closed completely.

Lymphatic and Portal Infections Following Appendicitis.—

J. C. Monroe, in the *Therapeutic Gazette* of January 15, 1901, says that infection of the retroperitoneal glands and lymphatics, as well as the portal vein, is of great importance, and its early recognition by the general practitioner is necessary, that operative intervention may be undertaken. He believes that it is a condition much more frequent than is generally believed. These cases furnish the perirenal abscess and the sinuses in the loin or in the groin. If the process stops short of abscess formation, the patient may become a chronic invalid.

The diagnosis of portal phlebitis is not difficult post mortem, but it is an involved clinical problem. The writer is quite confident that infection of these structures is more common than is generally believed. When a case in which good drainage has been secured is progressing well, but with a persistent elevation of temperature, he at once thinks of this complication if involvement of the chest, kidneys, and pelvic organs can be excluded. Portal infection, when it

reaches the degree of tenderness, jaundice, and general malaise, while it may be recovered from without usually calls for operation. Every case in which there is hepatic tenderness and a septic patient, whether attended with jaundice or not, is a possible portal phlebitis. The retroperitoneal lymphatics are probably always infected to some extent in inflammation of the appendix. The degree of the inflammation is not necessarily dependent on the extent of the inflammation, a mild chronic case at times giving rise to severe lymphangitis. The lymphatic disturbance may date its origin from an appendicitis occurring many months before. A lymphatic infection severe enough to warrant local treatment is rare in appendicitis, but is probably more common than portal infection. Occasionally, mild infections both of the lymphatics and of the portal system yield to medical treatment. Persistent fever, without other evident cause, should suggest one or both of these infections. Drainage in the loin gives prompt and satisfactory relief, even where pus or a diffuse cellulitis has formed. Prompt and thorough drainage of the liver, together with the removal of the inflamed appendix, offers the best means of recovery from septic infections of the liver. Aspiration of the liver is an imperfect procedure. Abdominal section with free exploration and free opening of all abscesses within reach is less dangerous and much more satisfactory.

The writer supports these conclusions by eight cases of lymphatic involvement after operations upon the appendix, and five cases of portal infection.

Gangrenous Inflammation of Meckel's Diverticulum Simulating Appendicitis.—

C. R. Darnall, in the *New York Medical Journal* of January 12, 1901, says that a Meckel's diverticulum is found in two per cent of autopsies. As a rule it amounts to only a slight sacculation of the lumen. He describes the case of a patient 22 years of age whose illness began with some pain in the abdomen and a feeling of weakness. The following day there was vomiting, some tympanites, and tenderness of the abdomen. The following day, the third of the illness, there was a fecal evacuation, which was the last. At three o'clock that day the patient suddenly passed into a state of collapse, and at 7 P.M. of the same day was found in marked collapse, the pulse small and thready, with vomiting at frequent intervals. There was tympanites, and the tenderness of the abdomen was most marked at the umbilicus. The following morning the patient was not much improved, and the vomiting had assumed

a distinct fecal character. A diagnosis of appendicitis was made and an operation decided upon. The abdomen was opened in the right iliac region and the cæcum and appendix found to be normal in appearance. The second day after operation he became suddenly worse, all the symptoms of a general peritonitis were present, and he died on the following day.

At the autopsy the abdomen was found very much distended, and there was intense general peritonitis, rather less marked in the vicinity of the operation wound than elsewhere. The peritoneal cavity was filled with a seropurulent fluid. A Meckel's diverticulum was found springing from the ileum, and was firmly attached to the abdominal wall at the umbilicus. It rose from the ileum at a right angle, and at its attachment the diameter was about two-thirds that of the intestine. It was patulous throughout, there was no torsion or kinking, nor was there any obstruction of the gut demonstrable at the autopsy. About two inches from the intestine the diverticulum was gangrenous, and in this a small perforation was found.

The reporter is of the opinion that the morbid process began primarily in the diverticulum and was similar to that which we have in a gangrenous appendicitis. The temporary improvement in the symptoms of the patient was to be referred to the injection of normal saline; the general condition of the patient remained fair until perforation took place.

Screw-nails in Fractures.—

A. Groves, in the *Canadian Practitioner and Review* for January, 1901, describes a severe injury to the face with a penetrating wound close to the nose on the left side. Among the other injuries, the left articular process of the lower jaw was entirely carried away, and the jaw was broken on the right side. To keep the fragments in position was difficult, owing to the severe injury of the soft parts. The bones were drilled with the aid of a dental engine, and a screw-nail secured perfect immobility of the fracture. Another case in which this method of uniting bones was employed was that of a fracture of the femur together with a fracture of the tibia near the ankle-joint, with extensive contusion of the leg and a compound fracture of the tibia about the middle. By ordinary means it was almost impossible to keep the fragments in position. In this case screw-nails were used with the best results. He believes that this is an excellent method, not only in recent injuries but in cases of ununited fractures where operative measures are required. In his cases he had silver screws made by a local watchmaker, but ordinary

iron wood-screws would answer the same purpose. It is much easier to put the screw in place than to use silver wire, there is less displacement of the soft parts, and the screws hold the fragments firmly, which wire never does.

THERAPEUTICS.

Tobacco.—

A. R. Cushny, in his recent text-book on Pharmacology and Therapeutics, 1901, gives an excellent account of tobacco, both of its origin, the extent and character of the tobacco habit, and of its supposed toxic properties. He says:

"Tobacco had been in use among the aboriginal tribes of America before they became known to civilization. It was introduced into Europe soon after the discovery of America, and its use as an article of luxury, beginning in England, soon spread to the continent, and in spite of papal bulls and numerous efforts on the part of the secular authorities, has continued to enthral a considerable portion of the human race. The most wide-spread use of tobacco — smoking — is also the most ancient one, having been that of the aboriginal Indians. Snuff-taking, introduced by Francis II. of France, remained fashionable for a long time, but is now almost obsolete. Tobacco-chewing is a modern development, but shows no sign of abatement. Curiously enough, the leaves of the pituri plant, which, as has been mentioned, contain an alkaloid nearly allied to nicotine, are formed into a mass and chewed by the natives of Australia. In smoking, snuffing, or chewing, nicotine is absorbed. It has been stated, and the statement has received an undeservedly wide circulation, that tobacco smoke contains no nicotine but merely the products of its decomposition; but as a matter of fact, tobacco smoke, whether from cigars or pipes, contains large quantities of the alkaloid itself, along with pyridine and many of its compounds. The amount of nicotine in tobacco smoke cannot be definitely stated, as it depends on the kind of tobacco, as well as on the way it is inhaled. In snuff the nicotine is generally small in amount, while in chewing tobacco there is generally a varying amount of foreign matter, such as molasses. The enjoyment derived from the use of tobacco has never been explained, and it is not even proved that nicotine is essential to the pleasurable results; consideration of the pharmacological effects of nicotine gives no clue, for these are of the opposite nature. It has been

suggested that smoking gives repose and thereby improves intellectual work, but this is denied by many habitual smokers. It has also been stated and denied that the mental energy was reduced by the use of tobacco, and an attempt has been made to demonstrate this by measuring the amount of work done with and without tobacco; but investigators are not agreed on the results, which probably depend largely upon the individual. One fact is certain, that the tobacco habit cannot be compared with the use of such drugs as morphine, cocaine, or alcohol; for it is not taken with the purpose of producing stimulation or depression of the central nervous system, and it seems doubtful whether the nicotine absorbed really has any action whatsoever. Perhaps the local effects on the mouth, nose, and throat play a larger part in the effects of tobacco than is generally recognized. A certain amount of rhythmic movement demanding no exertion seems in itself to have a soothing, pleasure-giving effect, for it is otherwise impossible to explain the satisfaction enjoyed by many in chewing tasteless objects, such as gum or straws. A curious fact, which tends to show that tobacco smoking is not carried on for the sake of the nicotine absorbed, is that the pleasure derived from a pipe or cigar is abolished for many persons if the smoke is not seen, as when it is smoked in the dark.

"Most people may indulge in the moderate use of tobacco for many years with perfect impunity, but its excessive use is followed in many individuals by a number of symptoms, some of them trivial, others indicating grave changes in important organs.

"One of the commonest effects of overindulgence in tobacco is a chronic inflammation of the throat and upper parts of the respiratory passages, leading to hoarseness and excessive secretion of the mucous glands. This is explained by the constant application to the throat of an irritant, alkaline vapor, and is probably not due to the specific action of nicotine. A similar irritated condition of the tongue is frequently met with, more especially when the hot vapor is directed especially on one part, as in pipe smoking, and it is sometimes stated that the constant irritation thus produced renders the tongue and lip more liable to cancerous disease. Dyspepsia, loss of appetite, and consequent loss of flesh may also be explained by the local irritation produced by the nicotine swallowed in the saliva. A common result of the abuse of tobacco is palpitation and irregularity of the heart, which has as yet received no explanation. Another important symptom is dimness of vision and imperfect accommodation of the lens for distance, which may go on to complete blindness in one or both eyes. In early cases the retina often appears pale, and if the condition per-

sists, atrophy of the optic nerve may result. The hearing is said to be affected by excessive smoking, but the symptoms are indistinct and variable. Nervous symptoms, such as tremor, exaggeration of the reflexes, headache, and giddiness, are sometimes developed in workmen in tobacco factories, but they do not seem to be induced by smoking or chewing tobacco, though depression, muscular weakness, and giddiness are sometimes complained of. In the great majority of cases of chronic tobacco smoking, the symptoms disappear on abandoning the habit, or even on restricting the daily consumption. A series of subjective and even objective symptoms are said to be induced in neurotic subjects by the sudden withdrawal of tobacco.

"The prolonged administration of nicotine to animals does not seem to produce symptoms analogous to those seen in man. Vas found in rabbits subjected to daily injections of nicotine for several weeks, a great reduction of the red blood cells along with a smaller increase in the leucocytes. The animals lost in weight, and changes were found in the nerve cells of the spinal cord and sympathetic ganglia similar to those described under chronic alcoholic poisoning."

Treatment of X-ray Burn.—

I. N. Bloom, in the *Louisville Monthly Journal of Medicine and Surgery* for December, 1900, reports the case of Dr. C. C. Goodshaw, who was shot in the abdomen October 30, 1898. He was immediately taken to the hospital, where an incision was made which included the wound of entrance of the bullet. The perforation of the stomach was sutured, as well as the wound in the lower portion of the duodenum. Drainage was employed, and fifteen days after entering the hospital the patient returned to his home. Seven months after the receipt of his injury a skiagraph was taken to determine the position of the bullet. The exposure was for thirty minutes, and five days later, on taking a bath, a brownish discoloration of the skin on the abdomen was noted. [No reason is given for taking the skiagraph; the bullet was causing no trouble so far as stated.] Ten days later this had developed into a sluggish ulcer, three by five inches in area, surrounded by bulbous dermatitis. The ulcer was clearly defined, though irregular in outline. In its center was an oval slough, somewhat elevated and about two inches in diameter. The latter was of a dirty yellowish-brown color, closely adherent to the underlying skin.

In describing his case, Dr. Goodshaw says: "No language can

describe my pain, suffering, and mental worry. I feared at times I would become desperate. My general health suffered, and a neurasthenic condition developed. I was unfit for practice, lost all energy, and was depressed and despondent. My sleep was irregular and disturbed, and I was compelled to lie upon my back. I lost greatly in weight." Various local remedies were employed without giving much relief. Orthoform as a dusting powder stopped the pain, and this was mainly relied upon for a period of over six months. Finally, some eleven months after the ulcer developed, the skin was sprayed with dioxide of hydrogen and afterward washed with sterilized water. Fourteen small skin grafts were transplanted on the affected region, eleven of them being in the necrotic area. At the end of forty-eight hours it was found that nine of the grafts had taken a firm hold. During the first four days the patient was free from pain almost for the first time since the occurrence of the burn. From the time of the grafting there was no more dermatitis. Granulations appeared and the central slough loosened, healing from below as it did so, and gradually disappearing, being assisted by an occasional removal of loosened areas. The most interesting point in the case was the disappearance of pain after the grafting. It was immediately followed by an improvement in the general condition of the patient.

Calcium Iodate as an Iodoform Substitute.—

William Mackie, in *The Lancet* of December 29, 1900, says that for the past fifteen months he has been using calcium iodate in surgical practice as an antiseptic dressing in place of iodoform. He has used it in both medical and surgical practice, and the results in both cases have led him to the belief that this substance will prove of very considerable value in medicine. For the past six months or more he has used it in all kinds of surgical work where iodoform is usually indicated. This substance contains 51 per cent of iodine, and in addition 16 per cent of available oxygen. In contact with putrescible matter, whether in alkaline or acid medium, it is decomposed and slowly liberates iodine. In an alkaline medium the iodide is reformed from the liberated iodine, so that the process in the presence of putrescible substance is a continuous one. As most pathological discharges are alkaline, the conditions are present for prolonged action of the remedy. In the presence of hydrochloric acid, chlorine is liberated in a nascent state. The antiseptic action of the substance depends upon the chemical instability of this particular compound. The calcium iodate seems to act more as a destroyer of

bacterial life than as a bactericide of any marked potency. It has, however, a marked inhibitory power on bacterial growth, and in this respect closely conforms to iodoform in its action. It is a powerful deodorizer, decomposing sulphuretted hydrogen and precipitating it in part as sulphur, and in part oxidizing it into sulphuric acid.

Calcium iodate is easily prepared by mixing some chloride of calcium with an aqueous solution of iodine in potassium iodide. It is without taste or smell, though a slight iodine odor may be detected in a freshly opened bottle. It is soluble in 380 parts of water. Even in this dilution it shows remarkable potency in inhibiting decomposition, in preserving a substance, and in checking fetor. A piece of meat suspended in a saturated solution of the salt remained perfectly fresh at the end of a fortnight. The writer has found it useful in cases of cystitis, markedly so in one case in which the tubercle bacillus was found in the urine. Used as a vaginal douche it inhibited pus formation in a case of purulent vaginitis of some weeks' standing. It has proven satisfactory in cases of chronic urethritis. He has used it in a large number of cases of ulcerated incised and infected wounds of the hands, and in all degrees of severity short of actual bone necrosis. Internally he has found it in doses of two grains to be of use in checking fermentation in the stomach. In administering the drug internally, he recommends that it be given in solution, as after swallowing the dry drug there is a sense of heat in the epigastrium.

Gastric Juice in the Treatment of Pus Cases.—

C. E. Munger, in the *Boston Medical and Surgical Journal* of January 3, 1901, has used gastric juice in suppurations of the ear. It is a true physiological solvent of proteids, and is unirritating and antiseptic, presenting many obvious advantages over other agents. Peroxide of hydrogen is of undoubted value, but it produces considerable gas, the pressure of which is not easily controlled. The artificial gastric juice which he employs he terms enzymol, which is a sterile fluid, and when diluted with an equal volume of water has about the acidity of normal gastric juice. It possesses great proteolytic energy, is an antiseptic and deodorizer, and produces little irritation except in very sensitive mucous membranes. Some cases readily yield to the solvent, and in others it is necessary to keep it in prolonged contact, with repeated washing and renewed application. The first case in which he employed it was an old middle-ear mastoid case, in which there had been a foul-smelling discharge from the external ear and through a fistula in the mastoid bone.

Three injections of a 50-per-cent solution of enzymol stopped the discharge, which had not returned at the end of seven weeks. Similar results were obtained in a typical case of purulent acute otitis media. In other cases the results were equally satisfactory.

It was employed in an appendiceal abscess, the enzymol being injected twice daily into the cavity, where it was left for ten minutes, and then washed out with normal salt solution. Soon after this abscess was opened its walls became infected, developing a membranous exudate. The enzymol applied to this surface rapidly dissolved the membrane, leaving a clean granulating surface. An ulcer from a burn containing a foul-smelling slough was cleaned within two or three days by applications of a 50-per-cent solution. Another case was that of extensive cellulitis of the chest wall in which pockets and sinuses had formed.

Iodized Starch.—

L. L. Soloman, in *Merck's Archives* for December, 1900, says that the profession has so long believed that the free administration of starch is the best antidote for iodine that they will be loath to give up the view that combinations of iodine and starch are physiologically inert. The iodine in combination soon becomes active under physiological processes like those found in the gastrointestinal tract. As one author puts it, "starch is an antidote to free iodine, but the stomach must be evacuated, as the iodine of starch is not inactive." Three years ago the patient began using iodized starch, and has come to the conclusion that it is quite as active as any of the other iodine compounds. Its exhibition leads to the absorption of iodine with all of its constitutional and local effects. Under the name amylum iodatum, it is found in the U. S. P. of 1880. It was written in this way under the belief that a definite union of iodine with starch did not exist. Such is probably the case, and at present we are justified in regarding iodized starch as an unstable combination which will decompose at a temperature of 100° F., and in the presence of alkalies iodine will be set free.

In the preparation of iodized starch, five parts of iodine is triturated with a small quantity of water and then rubbed up with ninety-five parts of starch until the mixture presents a uniform blue-black color. This is slowly dried at a temperature not higher than 104° F., when it is again pulverized, a fine blue powder resulting. Such a preparation is insoluble in water, has a characteristic iodine taste, provided it be held in the mouth a few seconds, and a

slight odor of iodine. The writer says that this substance can be employed wherever iodine is indicated; starch, being an important article of food, differs from other bases like sodium, strontium, etc., which are to a great extent foreign to the human economy.

The dose employed may vary from three to ten grains, given in a capsule, pill, or powder. The writer has given as much as from one to two drachms suspended in barley-water without distressing local effects on the stomach or bowels. It is not recommended as a substitute for the iodides of the alkaline metals, but may be found useful where an active iodine compound is needed and the latter are not well borne.

Alimentary Stasis.—

Alfred Martinet, in *La Presse Médicale* of January 2, 1901, gives an account of a case in which there was chronic gastric stasis. In from fifteen to thirty minutes after a meal the patient would be seized with malaise, pain in the epigastrium, with eructations of gas. As soon as these symptoms appeared, he would take a cup of warm tea and lie upon the right side with the head slightly elevated. As soon as the patient assumed this position, the vertigo, nausea, and regurgitation became less marked, and at the end of about a half-hour all the symptoms would disappear. Lying upon the left side, all the gastric symptoms were increased, and vomiting became marked.

FIG. 1.

The writer explains the conditions by the two following diagrams: Fig. 1 below the dotted line shows a somewhat prolapsed and dilated pylorus. He believes that the gastric stasis is due to accumulation

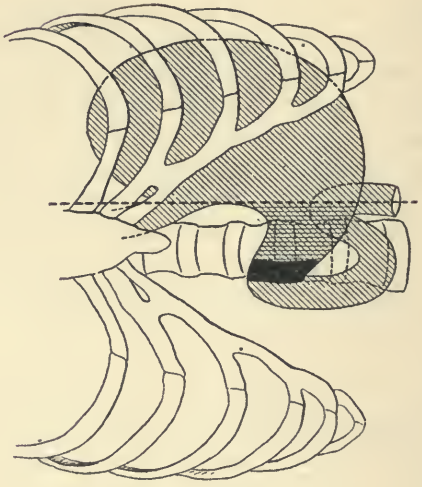

FIG. 2.

in this region, which is relieved by placing the patient upon the right side, in the position shown in Fig. 2. Here the position of the pylorus corresponds with the opening leading into the intestine, and in this way the passage of the food onward is facilitated.

Honthin, a New Intestinal Astringent.—

J. P. Parkinson, in *The Lancet* of December 22, 1900, says that many preparations made from derivatives of tannin, such as tannigen, tannalbin, and tannoform, have recently been placed upon the market, but they are to a certain extent split up in the stomach and are open to some of the objections which apply to tannin when administered by the mouth, namely, a coagulation of the albuminous fluids and a precipitation of pepsin, which interfere with digestion. Honthin is remarkably free from these objections. Nearly 70 per cent passes into the intestines unchanged from the stomach. It is a brownish powder, insoluble in water but partly soluble in saline solutions, and is without taste or smell. It acts when in the intestines by precipitating albumin and mucus, thus covering the inflamed membranes with a coating which protects them from the action of bacteria and irritating secretions. It also contracts the superficial vessels and diminishes the secretion of fluid. The dose is from five to fifteen grains. His experience with the drug extends over the past six months, during which time he has repeatedly used it in

hospital and private cases with good results. In the diarrheas of children, the beneficial effect is seen in the course of a day or two; there is a diminution in the number of stools and an increase in their consistence, with a lessening of the amount of mucus which they contain. A good practice is to administer castor oil before the drug is given. He has found it particularly useful in cases of diarrhea which continue in spite of careful dieting and the administration of the usual remedies. In diarrhea with copious and watery stools, the so-called choleraic form, it is of less value. In chronic colitis of adults it has been very useful.

Yohimbin, a New Aphrodisiac.—

In the *Therapist* of December 15, 1900, is the translation of an article from *Therapeutische Monatshefte* for November, 1900, which says that this is a plant whose therapeutic properties were first observed by the natives of West Africa. While most reputed aphrodisiacs among primitive peoples have upon examination proven very disappointing, the one in question has been found to have very marked physiological properties. A well defined alkaloid has been obtained from the plant. The latter resembles a small oak tree and is found in Mahimbo. The bark contains the active constituents. Several alkaloids were extracted from the bark, which in this respect behaved somewhat like cinchona, but by precipitation there was finally obtained what was thought to be the chief alkaloid, which was called yohimbin, and which crystallizes from alcohol in pure white needles.

The physiological effects are found to be somewhat similar to those of cantharides. There is an increased flow of blood to the genito-urinary organs. The effects so far obtained in man have been strictly comparable with those obtained in animals. As was to have been expected, no effect was observed upon those cases in which there was organic trouble with the spinal cord, but where the trouble was due to a mere functional weakness the effect in some cases was immediate. Yohimbin is administered in a one-per-cent solution of the hydrochlorate, five to ten drops being given three times a day. It may be obtained in the form of tablets.

Hematoporphyrinuria Not Due to Sulphonal.—

Joseph Calvin, before the Clinical Society of London (*The Lancet*, Dec. 22, 1900), reported the case of a woman aged 32 years who was admitted to the hospital for a hemorrhage of the stomach which

occurred two days before. She had a history of indigestion, and the diagnosis was gastric ulcer. The urine was dark-colored, with a specific gravity of 1.016, and contained no albumin, sugar, blood, bile, or casts. The spectroscope showed the bands of hematoporphyrin. The patient stated that a year before the attack for which she came under observation she had passed a similar dark-colored urine. She had taken no sulphonal, and her medical attendant stated that he had never given her the drug. An examination of the blood showed hemoglobin 48 per cent, red blood-corpuscles 2,292,000, white corpuscles 8500. A later blood examination showed an increase in the amount of hemoglobin and a corresponding increase in the corpuscular elements. The improvement in the blood findings was coincident with a decrease in the coloring matter in the urine. Throughout the case the hematoporphyrinuria appeared to be devoid of symptoms; all that were present in the case could be attributed to the vomiting of blood. The patient made an uninterrupted recovery.

The reporter stated that eight cases not due to sulphonal poisoning have been recorded, they all running a favorable course with the exception of one. This case is of striking interest because of the rarity of this condition unassociated with the administration of sulphonal.

A Plaster Bandage in Gastroptosis.—

H. W. Lincoln, in a letter to the *Medical Record* of January 12, 1901, calls attention to the plaster bandage for the abdomen, which was first described in the *Medical News*. He says that it is less expensive, less bulky, and less annoying to the patient, and accomplishes the result aimed at far more perfectly than any form of abdominal support. It has proven very serviceable in his practice in cases of reflex vomiting, cough, and belching, due to the displaced stomach. It has proven especially serviceable in those neurasthenic cases with one or more abdominal organs displaced and marked gastric symptoms; in many cases in which an absolutely clean-cut diagnosis was difficult, but in which the lower abdomen was supported by the hands in the position of the plaster, one application afforded immediate relief from the symptoms. Since his publication in the *Medical News*, he has used it in upward of fifty cases. One patient, who had worn the plaster two weeks, returned and asked that it be repeated when it came off. This was a case of ulcer with gastroptosis and double nephroptosis.

Bromide of Camphor in the Treatment of Epilepsy.—

Louis Hasle (*Thèse*, 1899; *La Presse Médicale*, Dec. 5, 1900) says that the bromide of camphor possesses a certain sedative action on the circulation, respiration, and particularly on the nervous system. It is especially valuable in diminishing the attacks of epilepsy, and undoubtedly diminishes the vertigo which accompanies this condition. It is a hypnotic, and diminishes reflex excitability. Its prolonged use causes a loss of weight, digestive disturbance, and the loss of the pharyngeal reflexes. It is prescribed in the form of pills or capsules containing from ten to twenty centigrammes, and in this way is best borne by the stomach. The daily dose should be from four to five grammes, and in severe cases, where large doses are being administered, the temperature of the patient should be regularly taken. Where the temperature falls below normal, the remedy should be immediately withdrawn. It will be found most useful in cases accompanied by vertigo, palpitations, and disturbances of sleep.

OBSTETRICS, GYNECOLOGY, AND PEDIATRICS.

Convulsions in Children.—

Montague Murray, in the *Clinical Journal* for December, 1900, has a clinical lecture on the causes and treatment of convulsions in children. There is no classification of convulsions which is at the same time scientific and useful. In dealing with any given case, we should endeavor to ascertain the rôle played by the different causal factors in the development of convulsions. These are: (1) Predisposing causes responsible for a certain instability of the nerve centers; (2) direct, and often trivial, removable exciting causes; and (3) serious, and often unsuspected, organic disease.

Age is an important predisposing cause. During the early years of life convulsions are much more frequent; as age advances they gradually decline, and with the exception of hysterical seizures practically cease at puberty. Heredity has a marked influence in the development of convulsions early in life. Rickets is so frequently a cause of convulsions that the nervous instability is recognized as a marked symptom of the disease. Brain disease acts as an exciting cause in most cases, but occasionally it may be a predisposing condition, the convulsions being initiated by some trivial exciting cause.

Directly exciting causes are usually connected with the ear and

mouth or the alimentary tract. Irritation of the external ear has been credited with the production of convulsions, but inflammation of the middle ear is unquestionably a commoner cause. Teething is occasionally the responsible agent, but only when some clearly recognizable lesion is present. Defective dentition may be associated with convulsions, but has no causal relationship except in so far as it is a manifestation of rickets. Irritation of the mucous membrane of the stomach and intestines is the most frequent cause; common sources are stones and other foreign bodies, indigestible articles of food, and intestinal parasites. These sources of irritation, however, are likely to be found with the predisposing causes, they not being in themselves sufficient to cause convulsions. Poisons of all kinds and burns may cause convulsions without the existence of any predisposing influence. Of the organic conditions which predispose to convulsions, the febrile diseases, including exanthemata and various inflammations of the central nervous system, easily take the lead. A convulsive attack often preceded by muscular twitching may be the first indication of uremia, especially in cases of unrecognized scarlet fever. The circulatory disturbance caused by sudden collapse of a considerable portion of the lung, as occasionally happens in whooping-cough, may result in convulsions.

In the diagnosis of infantile convulsion it is sometimes impossible to come to a conclusion on the day the fit occurs. If an opportunity of observing the convulsion is afforded, it should be noted whether the attack involves all the muscles and with uniform intensity, and whether consciousness is absolutely lost; also whether there is any change in color or an alteration in rectal temperature. When these points have been noted, the previous history should be ascertained.

The prognosis in convulsions is usually favorable, but if a series occur without any discoverable exciting cause, the prognosis both as regards life and subsequent mental development is grave. When convulsions or untoward incidents occur in the course of organic disease, they often indicate some complication and are an unfavorable omen.

The treatment of convulsions must always be subordinated to that of the general condition. In the absence of a well recognized cause it is well to place the child in a warm bath, 95° F. The utility of the bath is unquestionable, and it is devoid of danger except when the convulsion is due to syncope or collapse of the lung. In the majority of cases the convulsion ceases in the course of a half-hour, but when one convulsion rapidly succeeds

another, or when unconsciousness persists, inhalations of chloroform or rectal injections of chloral hydrate and the bromides may be administered.

Ovarian Grafting.—

R. T. Morris, in the *Medical Record* of January 19, 1901, says that ovarian grafting has its analogue in the grafting of portions of the thyroid gland, in which it has been necessary to remove that entire structure; no matter in what part of the body the graft is transplanted, it usually continues to perform its function. The cases of pregnancy which have occurred after double ovariotomy are due to the fact that a small portion of the ovary remains. In one of his cases in which he reopened the abdomen some months after a double tube operation, a small portion of the ovary on the distal side of the ligature was found to have retained its vitality. Such fragments of ovarian tissue have been thought to undergo absorption, but such is probably not the case. As early as 1895 he attempted the transplantation of ovarian tissue, in the hope that it would furnish the internal secretion of the ovary and thus avoid a precipitate menopause. His cases of ovarian grafting number twelve, of which six have been sufficiently well observed to admit of conclusions being drawn. In ovarian grafting he places the ovary that is to serve for a graft in physiological saline solution at a temperature of about 100°. In his early operations the graft was placed in a slit in the fundus of the uterus, but in later cases he has chosen the broad ligament as nearly as possible at the point that the ovary would normally occupy. By splitting the broad ligament and introducing the graft, it can be sutured in such a way that the inner surface of the ovary projects into the peritoneal cavity, while the right surface of the ovary is in contact with the denuded surface exposed by splitting the broad ligament. The result so far obtained in his experience is an avoidance of the menopause, the patients continuing to menstruate in a way that indicates that the grafts retain their vitality. In one of his cases pregnancy took place, but there was an early abortion. The result of operation upon animals is favorable to the contention that a grafted ovary will retain its vitality, will sustain menstruation, and in some cases which are exceptionally favorable may furnish a healthy ovum.

Congenital Stridor of Infants.—

John Thomson and A. L. Turner, in *Pediatrics* of January 1, 1901, say that this condition is usually noted shortly after birth. A croaking sound accompanies inspiration, which rises to a high-

pitched crow when a longer or more vigorous breath is taken. Expiration may be accompanied by a short croak when the stridor is loud, but at other times it is noiseless. In severe cases there are occasional brief intervals during which no sound is audible, but with this exception the stridor goes on constantly while the child is awake and sometimes even while asleep. Any mental excitement or physical cause of deep breathing intensifies the sound. The breathing, although nasal, is not accompanied by the slightest distress, and there is no cyanosis. The stridor increases in loudness during the first few months, and after remaining the same for a time, gradually lessens and disappears during the second year. Several views have been advanced to account for this condition, but the writers think it is due to a disturbance of the coordination of the respiratory muscles associated with defective development of the nervous centers. The change of form found in the larynx is a secondary result, due to the constantly recurring sucking in of the upper aperture of the larynx, which is induced by the incoordinated and spasmodic nature of the breathing; it is an acquired deformity, analogous to pigeon-breast. There is no evidence that it is ever due to a congenital malformation, as normal babies often present some peculiarity in respiration when emerging from chloroform narcosis.

Prolonged Artificial Respiration.—

In the London correspondence of the *Medical News* of January 5, 1901, is found a reference to an experience of G. E. Keith in prolonged artificial respiration. It emphasizes the necessity of continuing efforts at resuscitation long after they are apparently hopeless. It is just possible that many lives would be saved if this procedure was carried out with greater persistency. The child was seven years old and was born three weeks before the end of gestation. Circumcision was necessary, for which chloroform was given. During the operation breathing was embarrassed and considerable blood was lost. The operation was performed in the morning, and during the night the child became cyanosed and respiration stopped, but the heart continued to beat. Artificial respiration was commenced, and after twenty minutes natural respiration was established, only to cease in a few minutes. Artificial respiration was recommenced. Soon the heart seemed about to fail and the pulse dropped from 200 to 100. Hour after hour the physician kept up the monotonous artificial respiration, becoming more and more convinced that he labored in vain. At noon fluid began to accumulate in the lungs and the heart to fail. Marked improvement followed the adminis-

tration of oxygen, the face losing its earthy hue, the moist râles in the lungs dying away, and the heart-beats increasing in strength. At 3.30 P.M., twelve hours after the commencement of artificial respiration, a feeble inspiration took place, and at 5.45 P.M. natural respiration was established.

Dystocia Due to Rigor Mortis of the Fetus.—

J. H. Evans, in the *Australasian Medical Gazette* of November 20, 1900, reports two cases of what is evidently a very rare complication in labor, namely, a delay in delivery due to rigor mortis of the fetus. The first patient was forty years old, a multipara, who when seen had been in labor for several hours. There had been no fetal movements for twenty-four hours. After waiting two hours, there being no progress in the labor, the membranes were ruptured, the os dilated, and forceps applied. Considerable difficulty was experienced in effecting the delivery of the shoulders and body, due to the fetus being in a state of complete rigor mortis. The uterine attachment of the placenta was completely occupied by a large, firmly adherent blood-clot. A second case was almost identical with the first.

The author quotes Preyer to the effect that rigor mortis may occur in the fetal muscles as soon as they become contractile; hence, if the fetus dies and labor sets in very soon, the stiffening of the muscles may be a cause of dystocia. In one of the cases reported by the writer, stiffening was complete forty hours from the time the mother last felt any movement of the child, and in the other it was fairly well marked four hours after it was noted that anything was wrong. The parturient was near full time. The author can find records of only three similar cases, and many of the writers on obstetrics fail to mention this condition as a possible cause of delay in labor.

A Study of the Plantar Reflexes in Infancy.—

J. L. Morse, in *Pediatrics* of January 1, 1901, gives the results of the study of the plantar reflexes in 254 infants under two years of age, the object of the study being to ascertain if the reflex was present in infancy, and if so, if it was of any value in the study of nervous diseases of early life. The conclusions of the few observers who have studied it in early infancy are at variance. In testing the reflex, a moderately pointed orange stick was used. It was drawn not too rapidly or too forcibly toward the toes along the outer side and middle of the foot; each foot was always tested several times to

avoid error. The flexion of all or some of the toes was accepted as the flexor reflex. The extensor reflex was limited to the deliberate marked extension of the great toe, with or without extension of the other toes. Especial care was taken not to accept dorsal flexion of the foot, including the toes, as an extensor reflex. It is probable that this dorsal flexion of the foot as a whole has been mistaken by some observers as the true extensor reflex, and this fact may explain the discrepancy in the facts of several observers. A table is given of the results obtained: Flexion in both sides was found in 25.5 per cent, extension on both sides in 21.5 per cent, flexion on one side and extension on one side in 5 per cent, flexion on one side and no reflex on one side in 7 per cent, extension on one side and no reflex on one side in 6 per cent, no reflex on either side in 35 per cent, dorsal flexion of the feet in 8.5 per cent, drawing up of the legs in 11 per cent.

The conclusions are that there is no constant plantar reflex in the first year; while the reflex approaches the adult type during the second year, it is still inconstant. Owing to these variations, in the first two years of life the reflex is of no value in the diagnosis of diseases of the nervous system. Further observations are necessary to show at what age the normal reflex is established. It is undoubtedly later than the second year.

The Treatment of Hernia in Children.—

A. J. Ochsner, in the *Journal of the American Medical Association* of December 22, 1900, says that the development of hernia in children is favored by faulty development of the abdominal wall, the exciting causes being gaseous distention, difficult defecation, obstructions to the passage of urine, and severe or long-continued coughs. A large majority of ruptures in children will heal spontaneously if the increased abdominal pressure is relieved and the hernial sac is kept empty. This can be accomplished by means of trusses, or more rapidly in inguinal or femoral hernia by placing the child in bed, the time required not usually exceeding six weeks. While under treatment, care should be taken to prevent cough and constipation. Operation is indicated where the hernia is strangulated, is irreducible due to adhesions, and in cases where the opening is unusually large and the hernia cannot be retained by means of a truss. The recumbent position, with the foot of the bed elevated, is of great importance in the operative as well as the non-operative treatment of hernia in children. If the child cannot be kept in this position sufficiently long, a well fitting truss may be applied.

A Useful Prescription in Midwifery.—

C. H. Miles, in the *Clinical Journal* of December 19, 1900, says that the following prescription will be found useful in primiparæ, especially during the first stage of labor, when the patient is nervous, irritable, and hysterical, the os rigid and undilatable, and the pains severe and irregular:

℞	Potassæ bromidum	gr. x.
	Sodæ bromidum	gr. x.
	Ammon. bromidum	gr. x.
	Chloras hydras	gr. x.
	Tinct. aurantii	♏ x.
	Liq. strychninæ	♏ iij.
	Tinct. calumbæ	♏ x.
	Aqua chloroformi	oz. j.

Misce.

The combination of drugs in this prescription does not interfere with normal progress of labor, but it relieves the mental distress and unnecessary suffering so common in neurotic women. It is also useful in cases where labor has not actually commenced in those who have previously borne children, but where irregular false pains cause loss of sleep and nerve irritability.

FORENSIC MEDICINE.

A Peculiar Source of Aniline Poisoning.—

The *Archives de Médecine des Enfants* for December, 1900, has a review of a report made by Landouzy and Brouardel to the Académie de Médecine of a number of infants that had been poisoned by a shoe varnish containing an aniline base. The first of these cases occurred April 28, 1899. An infant of sixteen months, while in charge of a nurse on the street, was taken with asphyxia and lost consciousness. The eyes were found to be half-open, the face pale and gray, eyelids blue, hands pale, and the tips of the fingers blue. The pulse was 80 and the respiration slow, the temperature being normal. Auscultation of the heart and lungs revealed no cause for the cyanosis. Restorative treatment was applied; toward evening the somnolence passed off, and the following day the infant seemed quite restored, with the exception of a waxy tint of the skin, which persisted for three days. Prior to the appearance of these symptoms the child had been strong and well. Shortly before the time the infant was taken sick, a pair of shoes which had been freshly blacked with a varnish with a penetrating odor like that of India ink were put on its feet.

Twelve days later a brother of this infant, six years of age, had his shoes prepared in the same way and was taken for a walk. Three hours later his face was blue and he had a nervous chill, which later passed off. The following day a trace of the cyanosis remained. The second day after the attack the same shoes were worn, and the same symptoms resulted, but not so marked. In August, 1899, six children in a family of seven were poisoned in the same fashion. The children all went for a walk after having their shoes blacked, and after an hour the youngest became pale, the lips blue, the nose pinched, and the hands blue. A few minutes later a sister of four years was seized with vertigo and fell to the ground in a faint, with marked cyanosis. Following this was the seizure of a boy of five years, two girls aged nine and fourteen years respectively, and a boy of thirteen years. The latter complained of pain in the head and a sense of coldness. The face was pale and the hands and lips blue. Recovery in all the cases was rapid and complete. In another family a girl of three years went for a walk before dinner, having on shoes recently blacked. After her return, while at the table, she suddenly became livid and cold, with the phenomena of asphyxiation. The cyanosis was so marked that a physician was called in, who pronounced the case one of *maladie bleue*. The cyanosis persisted until evening. The following day the child was better, but for three days was fatigued and somewhat livid. It eventually made a good recovery.

Dr. Breton reports in the *Gazette des Hôpitaux* of October 6, 1900, the case of a boy of three years who suddenly lost consciousness; the face became leaden, the lips black, and the nose pinched. The extremities were black. The aspect of the child was decidedly cadaveric. The pulse was 120, skin cold, and the rectal temperature was 36.4° C. The morning before the child was taken sick it had eaten well and played, and was apparently in normal health. The attack came on shortly before five o'clock with pain in the stomach, and a few minutes later it fell in the street, presenting the symptoms described. The mother stated that the same morning in staining his shoes black she had employed a special preparation. On examining this, a well marked reaction for aniline was found.

The preparation with which the shoes were blacked was tried upon a guinea-pig weighing 500 grammes, one-half cubic centimeter being injected beneath the skin. Twenty minutes later there was paresis of the posterior extremities. A drop of blood under the microscope gave the absorption band of methemoglobin. The animal was lying on its side, presenting rhythmic tremors of

the extremities and discolored mucous membranes. Forty-five minutes after the injection the animal was killed, and the blood in the nerve centers was found to be much redder than that in the extremities.

Fright in Personal Injury Cases.—

The *Journal of the American Medical Association* of January 12, 1901, refers to the case of Ward *vs.* The West Jersey and Seashore Railroad Company, who brought an action for paralysis and other injuries due to the apprehension that was brought about by a gate-keeper closing a gate in front of him in such a way that he feared he would be run down by an approaching train. The Supreme Court of New Jersey said that a wise public policy required it to hold such an injury non-actionable. Mere fright, when no subsequent physical suffering results, affords no ground for action. When a personal injury as well as fright is produced by the wrongful act of another, the rule is that the jury is entitled to consider mental agitation as well as the physical injury. Where physical injuries result from fright, decisions are not harmonious; some States, as well as England, hold that physical injuries following fright alone are not recoverable on the ground that a person is responsible for the consequences of negligence, and a physical injury as a result of fright is not a probable consequence in a person of ordinary physical and mental vigor. In the general conduct of business or the ordinary affairs of life, we are bound to anticipate and guard against the probable consequences to those who are liable to be affected thereby, but in doing so we have a right to assume, in the absence of knowledge to the contrary, that such persons are of average strength both of body and mind.

Poisoning by Cacodylate of Sodium.—

William Murrell reports in *The Lancet* of December 29, 1900, the case of a patient aged 21 years, suffering from phthisis, who was given one grain of cacodylate of sodium in pill form. On the following day there was a distinct odor of garlic on the breath, and on the second day this was much more marked, was noticeable at some distance from the bed, and suggested the smell of phosphorus. On the third day the patient vomited twice, and the odor of the breath was almost gangrenous in character. On the next day, after eleven doses had been taken, the patient was found to be suffering from symptoms of arsenical poisoning. Her face was pale, the eyelids were edematous, and the conjunctivæ were injected. The patient

complained of pains in the limbs, especially in the lower extremities. There was tenderness on deep pressure over the course of the nerves, more marked in the left leg than in the right. She was unable to move the left leg, and there was distinct loss of power in the extensors of the left wrist. The patellar reflexes were not abolished, there was no diarrhea, and no albumin in the urine. The odor of the breath disappeared within twenty-four hours of the suspension of the remedy, and the condition improved, but the loss of power was still marked a week after the administration of the drug. The drug was obtained from one of the most reliable chemists in London, and was made by Pointet & Co., of Paris.

[This experience of Murrell calls attention to a warning which was previously given in these pages, to the effect that if cacodylate of sodium is administered for the arsenic which it contains, it had best be substituted by some other salt of more definite action. It may be possible that this substance has remarkable tonic and restorative properties, but if so, it is due, not to the arsenic which it contains, but to its action upon the system as a whole. If by any chance the arsenic is liberated, as it apparently was in this case, the results cannot be other than of more or less marked poisoning by that element.]

Poisoning by Vapo-cresolene.—

S. S. Adams, in the *Archives of Pediatrics* for December, 1900, reports two cases of carbolic acid poisoning directly attributable to the inhalations of the fumes of a vapo-cresolene lamp. One of the cases when seen was comatose, with marked pulmonary edema. The mother stated that the child had passed black urine, but for the previous twenty-four hours there had been no urination. The removal of the child to the open air resulted in its recovery. Another case was that of an infant six months old, who was found with stridulous respiration, mucous râles over both lungs, a cold clammy sweat, and dilated pupils. A vapo-cresolene lamp had been used in the same room for some hours before the unfavorable symptoms developed. Upon removal of the lamp the symptoms subsided.

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ORIGINAL ARTICLES.

INTRA-UTERINE PERIODS OF STRESS.[1]

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In the biologic study of man must be adopted two standards. The first, as Havelock Ellis[2] has shown, is that of the anatomic and physiologic characteristics of the child. The second has the combined characteristics of the ape, savage, and senility. The child is not an undeveloped man, but man is an imperfectly developed child. Man, as I have elsewhere pointed out,[3] is a compound animal in whom certain structures have their own nervous system and their own life, but under control of the central nervous system. Man is an aggregate whose internal actions are adapted to counterbalance its external actions.[4] Preservation of its movable equilibrium depends upon its development and the requisite number of these actions. Movable equilibrium may be destroyed when an action is too great or too small and through deficiency or need of some organic or inorganic factor in its surroundings. Each individual can adapt itself to these changeable influences in two ways: either directly, or by producing new individuals which will take the place of those in whom the equilibrium has been destroyed. Since the forces preservative and destructive of the race cannot counterbalance each other, the equilibrium must establish itself in an orderly way. Since there are two preservative forces—the impulse of every indi-

[1] Read before the Chicago Academy of Medicine, March 22, 1901.
[2] Man and Woman.
[3] *Journal of the American Medical Association*, vol. xxxi, p. 1311.
[4] Herbert Spencer, Biology.

vidual to self-preservation and the impulse to the production of other individuals—these must vary in an inverse ratio. The former must diminish when the latter augments. These two forces are therefore necessarily antagonistic. In the evolution of the compound organism, cells and structures have surrendered their reproductive powers for the benefit of the whole organism. Through what A. H. Thompson calls suppressive economy, local degenerations hence occur for general benefit.

The embryonic history of lower invertebrates is essentially that of the human organs. Vertebrate embryos, all of common type at their origin, assume successively many common forms before definitely differentiating. Supernumerary organs exist in these common forms at one phase of embryonic life. For these reasons repetition of teratologic types occurs in vertebrates. The higher vertebrate embryo, moreover, contains in essence the organs and potentialities of all lower vertebrates. Under the influence of heredity or accidental defect, an organ, structure, or function constant in a species may be lacking or excessive in an individual without distant atavism being involved. Varying conditions stimulate these embryonic potentialities at the expense of the later acquired and more typical human organs. Thus results a struggle for existence between organs and structures, early observed by Aristotle, Goethe, and St. Hilaire, but fully demonstrated by Roux[1] two decades ago. He, while admitting determination by heredity, shows that there are surrounding forces necessary, not simply the condition of activity by an essential element of the final product. The contrasted views of Weissmann and Goethe are thus harmonized by the existence of an internal or physiologic struggle for existence between the organs, the cells, and the protoplasmic molecules, of the organism. The principle back of development of tissues and organs is overcompensation of what is used.

This permits self-regulation and is a necessary precondition of life. Living matter, unlike inorganic, presents an external continuity despite change of conditions. To effect this assimilation must always be in excess (overcompensation), for if less than consumption, the organism comes to an end of itself. If equal conditions result, change and nourishment will fail or injurious events will cause destruction. Continuance can only be assured when more is assimilated than is consumed. Fire, for example, assimilates more than it uses—*i.e.*, it always has energy left over to kindle new material. Fire would (like life) become eternal did it not use up material quicker than other processes can make it.

[1] Der Kampf der Theile in Organismus.

In the same way organisms assimilate more than they can consume, but they do not turn all they use to assimilation; energy remains over by which the process performs something. This work-product controls the excessive assimilation which otherwise would come to an end by not having sufficient material to assimilate. The more complex processes of life are hence essentially a radiation of assimilation[1] which is similar to but not identical with combustion, the load which it carries favoring its continuity. This radiation, load, or work-product becomes directed by natural selection to keep up a supply of food primarily by moving the assimilating mass. Performance of function over and above assimilation is just as necessary a condition of continuous assimilation as assimilation is of performance. On the other hand, there comes to be an inverse relationship between growth and production (within limits), and capacities result which, although they use up material, do not in themselves increase assimilation.

The course of development consists in properly directing this work-product. This so far represents merely a continuous productibility of function in connection with assimilation. A productibility which is stored up and discharged by an outer stimulus of environment will be more economic and will give rise to what is called reflex excitability. When the reflex work-product dominates, according to circumstances, function will sometimes be greater and sometimes less. If, under these conditions, assimilation keeps on continuously, there must sometimes be an overplus, sometimes a balance, and sometimes an excessive function, death, and thus elimination. To avoid this last it is necessary that assimilation should depend upon use or upon a stimulus which use calls forth. From the psychic side stimulus is recognized as hunger.

This process where stimulus is an indispensable factor is more special and limited than the more general process of assimilation plus movement, etc., but has characteristics which favor it greatly in the struggle for existence. Connected with the most complete self-regulation of functionation is the greatest saving of material. While parts according to their use are strengthened and grow, the unused degenerate and the material for their substance is saved. This kind of process unites the greatest economy with the highest functionation of the whole, but at the cost of the independence of the parts. Senescence becomes thus a result in differentiation, in which the parts exist merely on account of the function which they perform for the whole. The senescing organs under the suppressive

[1] Scott: *American Psychologic Journal*, 1888.

phase of the law of economy of growth wither and even descend in this condition from generation to generation, which fact often allows a fresh start in development. During the course of a lifetime the organism moves from a more general, more easily impressible condition to one more perfectly mechanized. Through a long period it becomes, by the continuous working of a given stimulus, more completely adapted to itself, more differentiated, and thereby more stable, so that an always increasing opposition is formed to the additional development of new forms and characteristics.

This principle, known as the law of economy of growth, governs the relation of the organs to each other and the operation of the process whereby one structure is sacrificed for the development of another. Since[1] certain parts in the evolution of organs disappear, and in the evolution of organisms certain organs through suppressive economy, and since the disappearing and developing tendency of necessity centers around the time when certain functions are to be lost by the disappearing, and others gained by the developing, periods of stress occur around which the law of economy of growth centers the struggle for existence between parts of organs and between organs themselves. It is because of this that physiologic atrophies and hypertrophies and their reverse occur. Nearly all conditions of physiologic disturbance may result at these periods of stress from the influence of maternal nutrition or environment, or of hereditary factors.

In intra-uterine development, the disappearing and developing tendency is peculiarly well illustrated in the embryogeny of the genito-urinary system, which in all vertebrates contains rudimentary organs. The first stage in the formation of the kidney system is the pronephros, which consists of intricate canals opening into the body cavity at the point where the glomeruli are formed on the subintestinal vein. These canals originally had apertures to the exterior. Later on they became connected with one excretory canal opening into the cloaca. The primitive genital gland was situated close to the pronephros. In process of embryogeny the mesonephros, at first distinct from it in origin, replaces the pronephros. The mesonephros in appearance (a secretory urinary gland with its secretory canal, segmented duct) closely resembles the pronephros. The urinary system thus formed continues to be closely connected with the genital gland, the discharging canal of which passes through the mesonephric kidney to find exit through the segmental duct. During the mesonephric stage Muller's duct forms, starting from the

[1] De Moor: Evolution by Atrophy.

cloaca and opening out into the general body cavity. The mesonephros does not become the permanent kidney. In course of embryogeny the metanephros (the permanent excretory gland) develops. This development is attended by important modification; further instances of degeneration occur and fresh organic connections are established. In the male the mesonephros begins to atrophy. The part connected with the testes is transformed into the epididymis and the vas deferens. The remaining part atrophies. When the permanent organization is attained, the atrophied part persists as a paradidymis and a hydatid—organs without functions in the adult state. The discharging canal, which during the mesonephric stage is common to both urinary and genital glands, remains simply in connection with the testes and then becomes the vas deferens, the terminal extremity of which (the cloaca having disappeared) becomes gradually individualized. The permanent kidney is connected with a fresh canal—the ureter formed by degrees at the expense of the primitive discharging canal and subsequently separated from the latter in order to empty itself into the bladder. Muller's duct, which first increases in size, proceeds at a certain stage to atrophy until all that remains are the distal and proximal extremities in reduced organs (the hydatid of Morgagni and the male uterus), neither of which is functional. The intervening part of the duct remains to form the canal of Gasser. In the genito-urinary male apparatus therefore occur, when adult: organs which have come into existence at different times, but which have retained their original functions—the testes, the kidneys (metanephros), and the ureter; organs which are functional, but of which the ultimate function differs from the original—the epididymis and the vas deferens; reduced organs, vestiges of what were formerly active organs—the hydatid and the paradidymis; reduced organs, vestiges of Muller's duct which becomes active only in the female—the hydatid of Morgagni and the male uterus. Kidney development in the female is similar as to physiologic atrophy and hypertrophy. In that part of the mesonephros connected with the genital gland and the corresponding discharging canal, the canal as a rule disappears. Exceptionally it forms Gartner's duct. The lower part persists in a rudiment (Weber's organ); the upper part becomes reduced to a small tissue which surrounds the paraovarium and the paraoophoron —vestiges of the former mesonephros. Muller's duct becomes considerably enlarged, forming the vagina, the uterus, and the Fallopian tubes. At the upper end it is connected with the hydatid, a vestige of the mesonephros. The genito-urinary female apparatus

contains some organs the functions of which remain unchanged—the ovaries, the permanent kidney, the Fallopian tubes, the uterus, the vagina, and the ureter; and some rudimentary organs (vestiges of once active organs)—the paraovarium, the paraoophoron, hydatid, and Weber's organ.

The liver has undergone similar changes, being an older organ in the ontogeny of vertebrates than the heart. Embryologically and morphologically it is composed of two distinct parts, one related to excretion and the other to secretion, assimilation, sanguifaction, and metabolism. These parts are first a branching system of epithelial gall-ducts, and secondly a network of hepatic cylinders. During the second month of fetal life the liver is relatively enormous; during the third month it fills the greater part of the abdominal cavity. After the fifth month the intestines and other viscera overtake the liver; still the liver of the child at birth is twice the size of that of the adult. Immediately after birth the liver diminishes. The right lobe, always larger than the left, increases in predominance after birth. Very early in fetal life the liver becomes the principal seat of blood formation. As Claude Bernard has shown, the glycogenic function of the liver begins in the embryo. After birth the nutritive function of the liver becomes subservient to the excretory function. This is shown by the atrophy of the hepatic cylinders described by Toldt and Zuckerkandl. Arrest of development at certain times would produce the diabetic states so fatal to children. Such arrest may result from premature senescence from strain arising before but evinced during the first dentition, or from effects of constitutional disorders at early periods of stress. While the liver does not entirely lose its originally great sanguifactive powers, still these proportionately decrease with the evolution of the rest of the sanguifactive system in the embryo.

One possibility of the suppressive phases of the law of economy of growth is the production of cerebral states analogous to those produced in animals so far as the encephalic basis is concerned. The neuron passes successively through stages corresponding to those which are to be found in the adult fish, frog, bird, and mammal. In this case development consists in an increasing complexity of the cell with no formation of unnecessary rudimentary parts. Its ontogeny in man usually repeats in modified form the main ancestral stages. This is peculiarly evident when the cerebral development of man is compared with that of the vertebrate series.

In fish and batrachia (Ichthyopsidæ) the cerebral hemispheres

do not cover the region of the third ventricle from which the eyes arise (thalamencephalon). In the human embryo of the seventh week, same.

In reptiles and birds (Sauropsidæ) the hemispheres cover the thalamencephalon, but leave uncovered the region of the optic lobes (mesencephalon). In the human embryo of the middle of the third month, same.

In mammals the hemispheres cover the thalamencephalon (cerebellum and medulla) and the olfactory lobes. In the human embryo of the fifth month, same.

In some mammals even of higher orders (*e.g.*, some Hapalidæ) the hemispheres are smooth. In the human embryo of the middle of the fifth month, same.

Arrested development of the neurons would imply imperfect power of association and consequently imperfect potentialities for education.

As the power of passing through the fetal period of stress will depend on the condition in which the fetal organism is at the time of the period of stress, and as this condition of the fetal organism will depend partly on factors inherited and partly on the maternal condition, it must be obvious that defect in either at these periods of stress may so disarrange the struggle for existence between the fetal organs that reversionary conditions will gain the ascendancy.

This is true of even such grave conditions as cyclopia, in which the pineal body becomes an actual eye, as in certain lizards like the sphenodon; while the structures of the embryonic eyes normal in man disappear. In the lizard the pineal eye passes through the following stages of development: Formation of a hollow outgrowth from the roof of the third ventricle of the brain. This little sac elongates, changes its direction, and becomes divided into a proximal and distal portion. The cells lining the distal part farthest from the brain become differentiated into the cell which will form the lens, and the cells which will form the retina. The distal parts become specialized; the lens, the retina, and the stalk of the optic nerve are mapped out. The lens, the retina, and the optic nerve become fully formed. At this stage the third eye has reached its limit of development. There is a well formed retina connected with the brain by a special optic nerve. The organ projects strongly from the surface of the head, but from this point, owing to the development of the cerebral hemispheres, degeneration begins. The nerve becomes broken and fatty, and pigmentary degeneration occurs in it. At

the same time the pineal eye having become useless or even harmful to the animal possessed of it, before the power of receiving perceptions of light has been lost, and before the organ has been far reduced by phylogenetic destruction, a veil of black pigment is formed over it, completely shutting it off from outer light. The nerve disappears completely before birth, its degenerate cells becoming lost in the mesoblastic skeletal tissue of that region. At the time of birth the whole eye is enclosed in a thick membrane which isolates it. The deposition of pigment has destroyed any functional activity in the lens and the retina, but these parts none the less retain traces of a complicated structure recalling their condition when functional.

Similar stress has at the proper period arrested development of brain types in idiots at stages like the brains of Sauropsidæ (bird and reptilian type).

The fetal periods of stress of the human organism which most deserve attention are those of the senile (or simian) period of intra-uterine life (which occurs about four and a half months after conception) and the period of sex differentiation. Arrest at this period of senile intra-uterine development, through any of the processes which check development, may exercise peculiar influences on the extra-uterine development of the child. When produced by syphilis (which so frequently causes the senile appearance of new-born children) the child, because of organs which have undergone premature senescence, fails to pass through the first dentition, or readily falls a victim to secondary infections. Precocity, whether of the intellectual or physical type, is an expression of arrest of development at the senile period which causes the child to pass through the period of growth and senescence rapidly. Besides such obvious evidences of arrested development, minor expression (such as the senile children described

Senile fetal period (Talbot).

by Talbot[1] and Souques[2]) occur. This may involve the skin alone, the rest of the system being comparatively unaffected.

The truth of the popular opinion of precocity (early ripe, early rotten) is illustrated very frequently. Cratemus, a brother of Antigonus, was an infant, a youth, adult, married, begat children, and senile in seven years. Louis II. of Hungary was crowned in his second year, at fourteen had a complete beard, at fifteen was married, at eighteen had gray hair, and at twenty died. A ten-year-old boy, reported by Rhodiginus, impregnated a female. A boy born in 1741 had external marks of puberty at twelve months, and died senile at five years. Of six cases of early puberty in boys cited by Gould,[3] one, virile at one year, died senile at five. Cazeaux reports the case of a girl who menstruated at two, became pregnant at eight, and a grandmother and senile at twenty-five. Another child of three, with the breasts of a woman and genitals of a nubile girl, had a senile appearance. She menstruated regularly at two. In a case described by Woodruff a girl regularly menstruated from two years, and at six years was tall, with well developed breasts and a hairy mons veneris. In a girl reported by Van der Veer menstruation began at four months and continued regularly for over two years. She had the features of a child of ten. The labia majora and minora were well formed, and the mons veneris was covered with hair.

Premature senility may evince itself in atheroma of the arteries at the periods of extra-uterine stress. This has been observed rather frequently in the children of vegetarians and after the essential fevers.

Sex, as Dusing's biologic studies have shown, is not inherited, but is the result of various factors acting not only at the time of impregnation, but at various times thereafter. Long after impregnation, when the embryo is already developed, nutrition is still influential and may change the tendency even after the sexual organs have developed. Poor maternal nutrition may arrest female development, causing reversion to the male type. The psychic side of sexual differences should normally, as it often does, remain undifferentiated until adolescence. Adolescence is affected by the atavistic tendency to simian senility, which implies its early onset. This psychic side in the sex is ignored, yet the instincts which are transmitted from generation to generation (especially those so fundamental and universal as the reproductive instincts) may

[1] Degeneracy: Its Causes, Signs, and Results.
[2] *Progrès Médical*, July 15, 1888.
[3] Gould's Anomalies.

appear even where there is congenital absence or rudimentary development of organs upon which the manifestations depend.[1] The psychic manifestations of the sexual appetite may remain indifferent until adolescence, like the indifferent type of sexual organs (see embryologic illustrations of Gray's Anatomy) may be of homosexual type (to the same sex), of heterosexual type (opposite sex), or may be hermaphroditic (both sexes).

Three conditions (infantilism, masculinism, and feminism) and a mixed state may result from arrest of development before, at, and after sex differentiation in intra-uterine life. As the inferior organs and sex nerves are differentiated ere the psychic phase, this side of sex may be determined only in extra-uterine life. Practically all three are arrests of development of the promise of the child type.

Owing to the struggle for existence which occurs at puberty between the old type of the chondrocranium and its new type as supplemented by the dermal bones, the nervous system may take a distorted ply which arrests both bodily, nervous and mental development at certain points. In infantilism the arrest is of the future promise of the child, so that body and face remain at the childish point, or body and nervous system are checked, or finally the nervous system or certain organs alone are checked while the body goes on to full development. Not infrequently the face is arrested at any period from birth to puberty. Hence many persons retain a youthful appearance through life. Often these people are vain and egotistic. The mental stamina is weak. They are frequently unreliable. The females are often sexually anesthetic prostitutes, prurient prudes, hysteric reformers, or gossip-mongers.

As the female type from the standpoint of bodily and nervous development most nearly approximates the promise of the child type, checks in its development may result in masculinism and feminism. In the first the female has proceeded so far in development as to have female organs and their functions, while retaining traces of a predominant character of the lower male type. In the second the male has proceeded along the line of evolution toward the female type, but ere sex has been fully differentiated further development has been checked and the male type is finally assumed as the predominant one.

Both sexes proceed, as has been shown, from an indifferent type, nearly resembling the hermaphroditic type found in the lower vertebrates.

[1] Clara Barrus: *American Journal of Insanity*, 1895.

Arrest of development may therefore take place at any point in the embryogeny. The male may preserve only the female breasts while normal in other respects, or again, present cryptorchidism or sloping shoulders, and be otherwise masculine. On the other hand, his nervous system may have taken such a ply that at the period of puberty the sexual instincts are female in direction. In some instances this extends merely to extreme modesty toward males, an intense liking for female occupations, or a disgust for those of the male. In the female precisely analogous conditions may occur.

In certain cases the sexopsychic side is entirely dormant until adolescence. Education here may give sex direction rather than any innate tendency. In a case reported by Windle,[1] a male, who had undergone arrest of development in his evolution toward the female type, was brought up as a girl, and had unusually pleasing womanly qualities; as a result, was married thrice to intensely devoted husbands, and the real sex was never suspected until the necropsy demonstrated that the supposed woman was a male. In other cases where the nervous system has taken one sexual ply while the body has taken another, beings result which need especially careful training during infancy, youth, puberty, and adolescence. In some instances, in addition to the sexual distortion, there exists in these beings mental defect and a moral obliquity which approximates the criminal type. In some instances no mental defect in the ordinary sense occurs, but moral obliquity alone. In the higher and lower races the tendency as to sex predominance is in different directions. The female of the lower races more nearly resembles the male of the race than does the woman of the higher races the man. The man of the higher races more nearly resembles in mentality and pelvis the woman of his race than does she the females of the lower race. This is in part due to intrusion in the course of evolution of the male on female occupations, since all occupations other than war, hunting, and fishing were created by women. The male in the higher races, while taking on female intellectual and esthetic qualities, retains male sexual characteristics mentally and physically, which in accordance with the law of evolution, however, manifest themselves less explosively than in the male or even in the female of primitive races.

While the sex differentiation, so far as special sex organs are concerned, may not be arrested at this period, still normal sex development may be so affected as to induce premature sexual appetite expressions, usually in a generalized pleasure rather

[1] *Alienist and Neurologist*, 1891.

than conscious sex direction. This is obviously the fact in cases of thigh friction reported by C. W. Townsend[1] in girls under one year who were in good health, without genito-urinary abnormality or irritation. This generalized pleasure underlies that autoeroticism of future life into which, as Havelock Ellis[2] and C. H. Hughes[2] have pointed out, the sexual emotion may be absorbed and even entirely lost in self-admiration. This Narcissus-like tendency, of which the normal germ in women is symbolized by the mirror, is found in some men. It is well marked in women sometimes in association with an attraction for other persons, to which attraction it is normally subservient. In the extreme form in which alone the name of Narcissus may properly be invoked there is indifference to sexual gratification or admiration of the opposite sex.

[1] Transactions American Pediatric Society, 1896.
[2] Psychology of Sex, vol. ii.

INTESTINAL SUTURE, ALL KNOTS INSIDE.[1]

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Owing to the multiplicity of operative procedures employed in intestinal suturing, and for convenience in considering the subject as a whole, the various methods have been classified as follows:

A. Foreign Bodies.—(1) Four Masters, and modifications; (2) Invagination, and modifications; (3) Senn plate, and modifications; (4) Murphy button, and modifications; (5) Special forms.

B. Suture.—(1) Glovers', and modifications; (2) Invagination, and modifications; (3) Lembert, and modifications; (4) Placing knots inside.

C. Miscellaneous.

Not one of these various methods has met with universal, and but few of them with even partial, adoption. Outside of the Czerny-Lembert and its closest imitators, the Murphy button, and the Maunsell methods, there are but few worthy of more than historical interest.

A (1) In considering foreign bodies, the so-called method of the Four Masters is the first authenticated instance in which a foreign substance was inserted into the lumen of the divided bowel with the purpose of aiding in the union of the severed tube. This method consisted of the employment of a goose trachea of suitable caliber as a bridge, over which the divided ends of bowel were drawn and anchored in place. It was so named after four monks who practiced medicine and surgery, and became famous during the thirteenth century.

The principle involved we find employed extensively up to and including the present day. Various substances have replaced the primitive goose trachea by the later investigators, who have the experience of the past six centuries to draw upon. The most recent manifestation of this particular application of the foreign body—that is, the placing and maintaining of the cut ends in position, and as an aid in placing sutures—we find in the "inflatable rubber cylinder" of Halsted, which improves upon the ancient method, in that when the suture is all but completed, the bulb is deflated and removed before the last stitch is tied.

The question as to whom is due the credit of first employing the rubber bulbs as an aid in intestinal suturing seems to be somewhat

[1] Read by invitation before the Detroit Medical Society, Nov. 14, 1900.

doubtful. In February, 1898, the *Philadelphia Medical Journal* published an editorial entitled "Independent Discoverers of Inflated Rubber Cylinders for Intestinal Suture," and the *International Journal of Surgery* for April, 1898, under the heading "Inflated Rubber Cylinders for Intestinal Suture;" both of which make note of and remark upon the peculiar circumstance of four men—Reder, Downes, Halsted, and Wakerhagen—practically simultaneously, and independently of each other, working along the same line.

In neither of these editorials, nor in the original articles of these four men, is the name of Frederick Treves mentioned, who as early as December 12, 1882, presented at the Medico-Chirurgical Society of London what is practically this same idea, which has assumed a rather marked prominence in intestinal surgery at the present day.

A (2) The original invagination method was employed by use of suture alone, and will be spoken of under that heading. But in an effort to aid invagination, to eliminate postoperative continance of the invagination, to prevent undue ectropium of the mucous membrane of the intussusceptum, to keep the lumen of the bowel patent during the inflammatory stage, and to assist in maintaining sero-serous coaptation, foreign bodies have been added to the earlier and simpler methods of invagination.

Union by this method is not at all popular. The procedures of Senn, Robinson, Paul, and Jessett are typical examples, rubber being the foreign material employed in the first two, and decalcified bone in the latter two.

A (3) In 1887 Senn presented the decalcified bone plate, which being employed extensively was the beginning of intestinal surgery in America, and the pattern for many modifications; all of which, with the original, have been pushed to one side in the progressive march of time, as represented by the development of more trustworthy methods.

A (4) Under this heading we consider that appliance which is the mechanical contrivance *par excellence*, which has entirely superseded all other inventions, and at the present time is by far and beyond all doubt the method used most often in intestinal surgery—the Murphy button, the ideal method in all but one feature, that of the insertion of a large foreign body into the intestinal canal. Like other successes, this also has been imitated and modifications followed, the most important of which is the "decalcified bone coupler" of Frank, wherein the aim is a combination of the admirable qualities of both the decalcified bone plate and the Murphy button.

A (5) In this division of intestinal union, by means of foreign bodies of special form, we find a variety of procedures, all of which are only of historic value; their era of usefulness having passed, if ever existent.

B (1) The Glovers' stitch is the first intestinal suture recorded. In this the needle is passed from without in on one side, then from within out on the opposite side of the wound. This suture, as well as its modifications, which were but slight and of little importance, has been entirely abandoned for intestinal work since the advent of the discoveries of Lembert and Lister.

B (2) The first recorded case of recovery following circular enterorrhaphy for complete transverse division of the bowel was performed by Ramdohr about 1730, in which he inserted one cut end into the other, and retained the parts in position by a single suture at the convex border. The early date, the sero-mucous apposition, and the presence of only one stitch, with the failure of similar attempts, all go to show that the result was merely a fortunate circumstance, and no criterion upon which to base our knowledge of intestinal repair.

Jobert, in 1882, employed the invagination method, after modifying it by first inverting the distal end, and then inserting the proximal end or intussusceptum, and fixing the same by means of sutures penetrating all coats; so obtaining a sero-serous coaptation.

The question of priority as to who was first to describe a method of suture whereby a sero-serous coaptation was obtained is disputed as between Jobert, Denans, and Lembert.

In 1889 Chaput obtained a union by means of invagination, after first removing the mucosa from one end, thereby securing a sero-fibrous union. His experiments were not satisfactory; but Harris, of Chicago, in his work along this line, by a more perfect method of suturing obtained a sero-fibrous union, with uniform success in his experiments.

Nicoll and Skelly have proposed similar methods.

B (3) Lembert, in 1826, presented his method of suture, which, like Jobert's, causes sero-serous apposition of the divided walls, and unlike the same method in that the stitch or suture material does not penetrate into the lumen of the gut; the bite of the stitch including only the serous and muscular layers of gut wall. This method, as would be expected, has been greatly modified—as by Dupuytren, who made the Lembert continuous. Among the many other modifications the most important are the "Cushing right angle stitch," which has been employed considerably, and the "quilt suture" recom-

mended by Halsted, in which he reduces the number of knots to half those tied in the ordinary Lembert, and places the knot to one side of the suture line, instead of on top of it.

B (4) The sutures in which the knots are placed within the lumen of the bowel will be taken up in more or less detail further on.

C. Under miscellaneous are classed various methods, which in principle differ from both suture alone and the introduction of a foreign body; such as the "clamps" or "holders" devised by Mudd, Grant, Morrison, La Place, McLean, Downes, Ferguson, O'Harra, and E. H. Lee, which hold the divided ends in place till the suture is all but completed, and are then withdrawn, thus leaving no foreign body behind.

There is prominent in the history of intestinal surgery a tendency to remove the knot of the suture from the serous surface of the bowel wall. As early as 1826 Denans, in recommending his method of procedure, says: "The ligature knotted at the point D is entirely within the intestine and fastens the ferrules together." Similarly, Gely, in 1844, presents as one of the advantageous features of his suture: "The knot is as completely concealed between the serous surfaces as are the stitches."

From these pioneers in this particular subdivision of the subject we find a gradual progressive advancement up to the method of Maunsell, in which the knots of all stitches, at the site of the enterorrhaphy, are located in the lumen of the bowel.

The situation of the knot, relative to the intestinal wall, as seen in the various methods of suture, is one of the most interesting chapters in intestinal surgery.

In the primitive method of operative interference for intestinal injury—that is, in the formation of an artificial anus—we find the knot, not only on the outside of the intestinal wall, but at the same time on the outside of the abdominal wall. In the next instance, in which an effort was made to repair the wound of gut by use of the Glovers' stitch, we find the knot on the outside of the intestinal wall, but anchored to the abdominal wall; so excluding the free peritoneal cavity, by causing adhesions to form between the visceral and parietal peritoneum, and in this manner decreasing the danger of peritonitis if leakage or perforation should take place.

With improvement in technique and method of procedure, such as the establishment of the so-called Lembert principle and the aseptic and antiseptic wound treatment, as a substitute for the older effort to unite the bowel wound in the same manner that ordinary

wounds are sutured—*i.e.*, approximation of histologic elements layer for layer—more confidence as to the result is evident by finding the knot of sutures still on the outside of the intestine but in the free peritoneal cavity, not adherent to the abdominal wall.

With the advent of certain methods of suture and mechanical contrivances, we find the knot, as before, on the serous coat of the bowel, but differing from the previous stage, in that the knot is buried between the two apposed serous surfaces, and is usually completely hidden from view; no part of the suture or knot being actually in the free peritoneal cavity.

The next, final, and ideal location we find in the lumen of the gut.

To recapitulate, the knot was placed (1) outside of the abdominal wall; (2) outside of the intestinal wall, anchored to the abdominal wall; (3) outside of the intestinal wall, in free peritoneal cavity; (4) outside of the intestinal wall, buried between serous surfaces; (5) inside of the intestinal wall, on the mucosa.

Thus we find that the seat of election for the knot has gradually progressed from the *outside* of the body (abdominal wall) to a different yet similar location again on the *outside* of the body—*i.e.*, in the lumen of the intestine.

History may be said to be repeating itself in our present-day effort to operate extra-abdominally by working inside the lumen of the bowel, which is but an imitation of, or improvement upon, the methods of our predecessors, who operated extra-abdominally by working outside of the abdominal wall.

During the same time that this progressive involution of the knot is taking place, we find another gradual improvement occurring—that is, regarding the amount of tissue included in the stitch. Previous to the days of Lembert all coats of the bowel wall were traversed by the needle, and included in the stitch. But with the reception of the Lembert suture only a portion of the entire thickness of the wall was included: the peritoneum alone in the earlier instances, but by actual experience it was soon found that such stitches frequently gave way, yielded, owing to the extreme thinness of the serosa. In consequence more of the bowel wall was included in the stitch, the needle passing through the muscular layers, at the same time, the operator exercising great caution to prevent penetrating into the lumen.

It was not till Halsted pointed out the fact that the submucous coat was the particular layer of the gut wall to which its strength was due that it became a general custom to include fibers of this

coat in the so-called Lembert suture. He performed experiments showing that even a few fibers of the submucosa included in a stitch were more effectual in preventing suture yielding than were the other coats combined. He likewise demonstrated the possibility of including a few fibers of this coat in the stitch without opening into the lumen of the canal.

In the next step we find the suture again including all coats of the bowel wall, but with this essential difference from the original suture: the knot is in the lumen of gut, while in the primitive method the knot was on the serosa. The steps in this progression are: (1) The suture including all coats, knot on serosa; (2) the suture including peritoneum only; (3) the suture including peritoneum and muscularis; (4) the suture including peritoneum, muscularis, and submucosa; (5) the suture including all coats, knot in the lumen.

Among the more important methods which have been presented to the profession in which the knots are placed in the lumen may be mentioned: (*a*) Vesein, (*b*) Bishop, (*c*) Czerny, (*d*) Maunsell, (*e*) Ullman, (*f*) Hartigan, (*g*) Cheatle, (*h*) Wiggin.

(*a*) In the procedure proposed by Vesein the security of the stitch is extremely doubtful, because, instead of a knot being tied, merely a double twisting of the suture ends is depended upon.

(*b*) Bishop employs a continuous suture—"shoemakers' stitch" —and after tying the final knot pushes it into the lumen. Recognizing the weakness of this final knot he adds: "In practice it is often more satisfactory after last loop is tied to introduce one Lembert stitch, so as to more evenly close the final opening."

(*c*) In adding a mucous row of stitches to the Lembert, Czerny gives us the most popular method of union by suture alone—the "Czerny-Lembert."

(*d*) By employing the principle carried out by the tailor in sewing a sleeve into a coat, Maunsell was able to place the knots of all the stitches introduced, in the enterorrhaphy proper, in the lumen. But in order to accomplish this it became necessary to make a second incision, which must be closed with the knots on the serosa. This method has been used considerably with almost uniform success. Of thirty-one reported cases, death resulted in three instances, and of two of these it is said that death "could not in either instance be fairly attributed to the failure of the suture, or the method of applying it."

(*e*) Ullman slightly modified the procedure of Maunsell.

(*f*, *g*) Cheatle and Hartigan made the secondary longitudinal

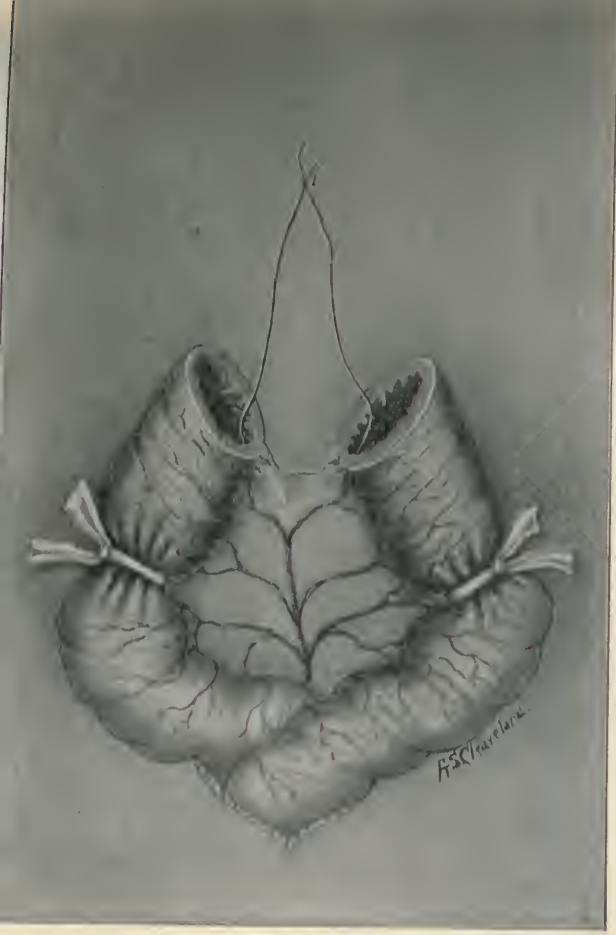


PLATE 1.—The mesenteric or suspending loop 1 in position, to insert which the needle with thread is passed through all coats and the V-shaped mesenteric space of each cut end. Its object is to bring this part of the mesentery and intestinal wall into perfect apposition, and thus secure a sero-serous approximation throughout the line of union.

PLATE 2.—Suspending loops 2, 3, and 4 are made with one thread inserted at a point two-thirds of the distance from mesenteric to convex border. The needle with suture is passed through the four walls of the cut ends, and that portion of suture within each lumen is drawn up to a sufficient length, then cut, and the contiguous threads tied at the points indicated by the arrows; thus having as a result four suspending loops dividing the circumference of each cut end into thirds.

Instead of employing four suspending loops which divide the circumference of the bowel into thirds, we may use but two loops, and thus divide the circumference into halves; or, if available, the "holder" devised by Dr. E. H. Lee can be recommended highly, and will be found a most efficient aid in maintaining the cut edges in apposition. (The description of the instrument will be found in the *Annals of Surgery*, January, 1901.)

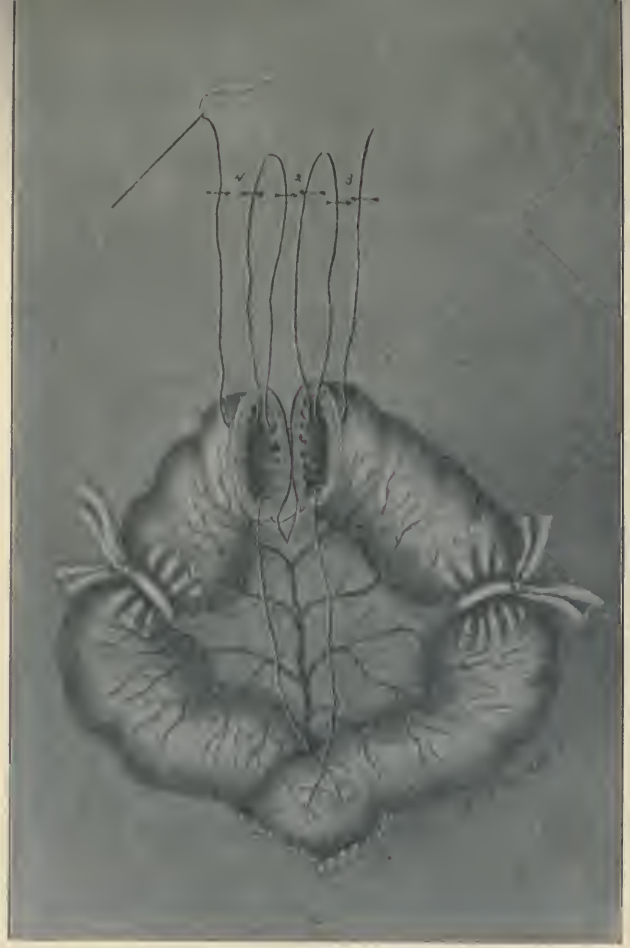


PLATE 1.

PLATE 2.

incision (of Maunsell) a continuation of the transverse incision, and so dispensed with the invagination. Cheatle afterward suggested that the longitudinal incision be closed after the method of the Heineke-Mikulicz pyloroplasty, thus eliminating the danger of stenosis.

(*h*) Wiggin discards both the secondary incision and the invagination, and closes the final portion by means of Lembert stitches.

It will be seen that in none of the above methods are *all* of the knots placed in the lumen, and even where all knots at the site of union are so situated, this has been accomplished by use of a secondary incision, which in turn is closed by Lembert stitches.

In the *Philadelphia Medical Monthly* for January, 1899, was published a method of enterorrhaphy, devised by the author, in which the knots of all stitches employed are located in the lumen of the gut; the steps of which are clearly demonstrated in the illustrations here presented.[1]

After the preparatory steps have been taken, the abdominal incision is made, a loop of intestine brought into the abdominal wound, its contents stripped to each side, and soft clamps then applied. The mesenteric vessels are ligated and the necessary amount of intestine removed.

What are termed suspending loops have always been employed, and while not entering into the suture proper, they have been found of great value in holding the divided ends in proper position, while the suturing is being done. Four such loops are employed.

This method of suturing may be used not only in a continuous suture, but as well when interrupted stitches are employed; and not in circular enterorrhaphy alone, but also in lateral anastomosis, gastroenterostomy, pylorectomy, and in pyloroplasty, or even in ordinary incised wounds—in fact, under any circumstances that the ordinary suture might be used.

The advantages to be gained by locating the knot within the lumen may be summarized as follows: (1) No foreign body—suture material will all pass away; (2) early passing away of suture material; (3) decrease in adhesions to neighboring organs; (4) perfect serous approximation; (5) increased security; (6) smaller diaphragm; (7) less danger of necrosis; (8) suture may penetrate all coats of the bowel wall.

1. In the majority of cases, in which the suture penetrates only part of bowel wall and is knotted externally, the suture material

[1] The originals of these illustrations will be found in the article by Dr. Franklin H. Martin, where he reports the first case on the human subject by this method, published in the *Journal of the American Medical Association* of November 3, 1900.

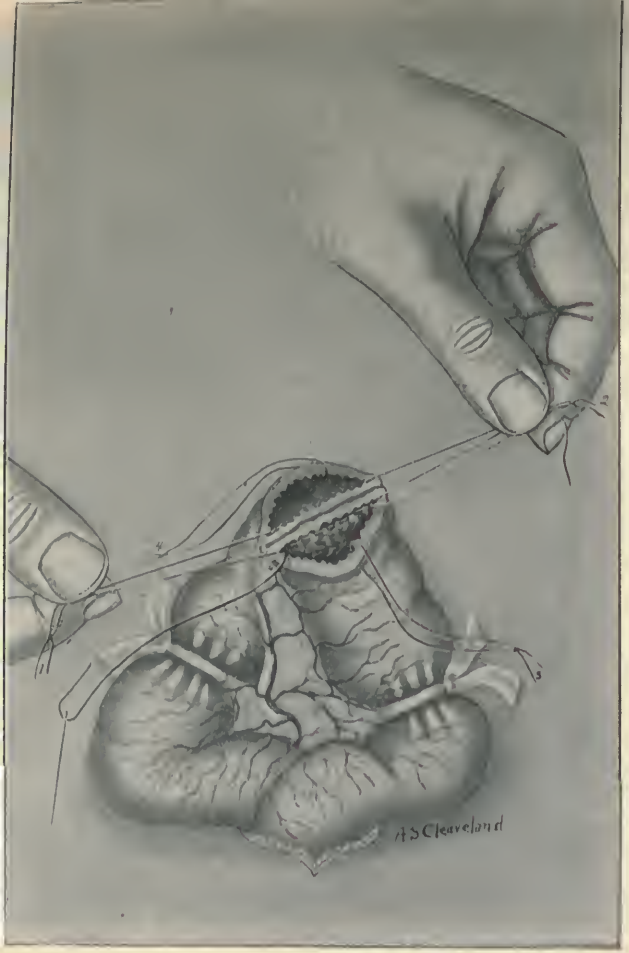


PLATE 3.

and 2, held by an assistant, bringing into apposition the one-third of the intestinal walls between these two points. The needle (of suture proper) enters the mucosa from the lumen of one cut end, near loop 2, penetrates all coats of both walls, passes into the lumen of opposite cut end, where it is reversed and made to traverse again the intestinal walls, but in an opposite direction, parallel to, and about one-eighth of an inch from, the first half of the stitch just described. This first stitch is then secured by tying on the mucous membrane, and the free end of the suture not cut, but held by the assistant with loop 2. The operator then unites the apposed walls with a to-and-fro or running suture until he reaches loop 1, where a back stitch is taken to prevent puckering.

PLATE 4.—Loop 2 has been cut away, and loop 1 takes its place in one hand of the assistant, with loops 3 and 4 held in the other hand, thereby bringing into apposition that portion of the walls to be included in the second third of the suture.

The operator continues the suture to the points of insertion of loops 3 and 4, where again a back stitch is taken, to fix the suture and prevent a purse-string contraction of the same.

The white elevation in the center of illustration, representing mesentery, shows that that portion of the intestinal wall not covered by peritoneum, at the mesenteric border, has been secured in the suture.

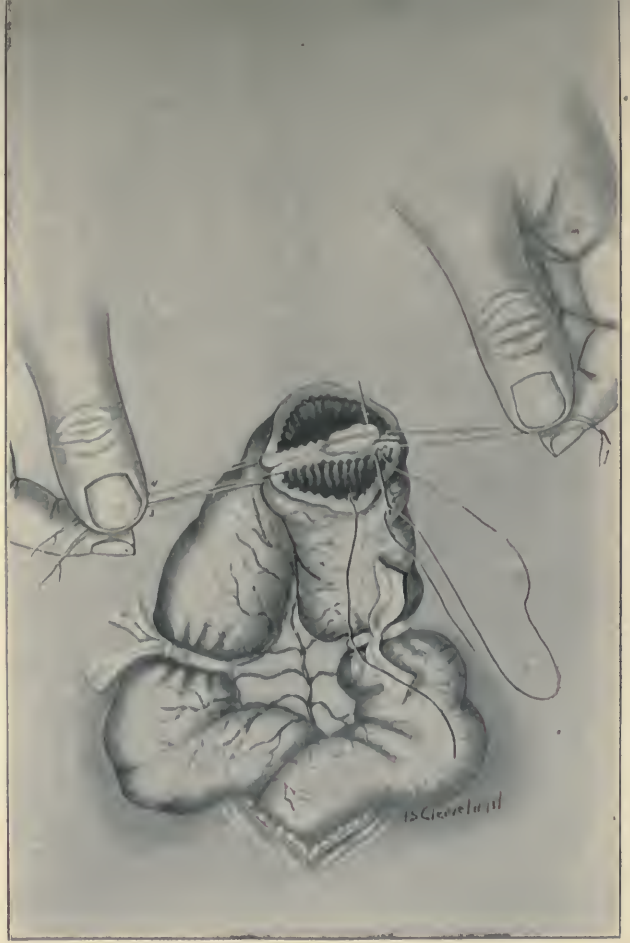


PLATE 4.

becomes encysted, remaining as a foreign body, which may or may not give rise to symptoms more or less objectionable if not dangerous.

Bishop says: "If it is convenient, if not necessary for a stitch to pass away after its mission is completed, it is better that it penetrate all coats of bowel than if it penetrates only peritoneum." Under such conditions the suture material will always pass away, no foreign body of any description remaining behind.

2. If the ordinary intestinal suture does not become encysted, it will migrate directly through the intestinal wall, into the lumen, and pass away with feces. This process will occupy ordinarily about from six to eight weeks. With the knot inside the suture will separate much sooner. In one instance, upon removing a twenty-one day specimen from a dog, the continuous suture was found entirely free, and about to pass off in the fecal current.

3. No knots on serous coat to irritate the adjacent organs or tissues which may and will come in contact with the site of the union.

Halsted says: "The success of any form of intestinal suture is inversely proportionate to the extent of the adhesions which result from the employment of the particular method." These adhesions are quite common, as is séen by Robinson's report, in which they were present in 80 per cent of 200 dogs experimented upon. It has been said that these adhesions tend to strengthen the joint *if* they do not form bands underneath which a loop of intestine may become strangulated. Even if no such grave result follows their formation, they may act as a cause of vague, indefinite, or perhaps marked uncomfortableness, tenderness, or pain, which may do considerable toward producing a condition of chronic invalidism.

4. With knots external, the serous coats are separated at frequent intervals (or at one or two points if a continuous suture is used) by bulky knots and ends, which prevent coaptation at such points, thus causing unequal serous apposition, the contact of serous surfaces being greater between than under the knots. Clumsky, in a recent contribution upon the subject of intestinal union, states that in all cases of union by suture alone, in which leakage occurred, the seat of the leakage was found at the site of the knot.

5. One row of stitches including all coats, instead of two rows each including but a part of the intestinal wall—thereby offering more safety against stitches yielding, and at the same time doing away with the "weak spot" in the two-row methods, where the final, deep, or mucous stitches cannot be tied.

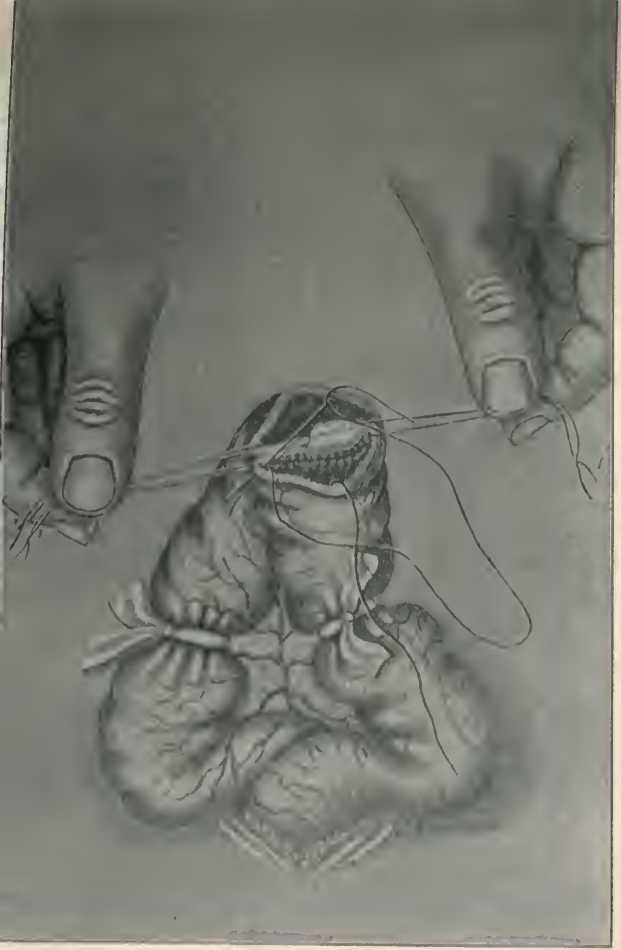


PLATE 5.—At this point the needle for the first time is made to emerge from the lumen of the bowel, at a point corresponding to where the next stitch would be taken, and appears on the serous coat of one cut end of the intestine. Two-thirds of the circumference of the intestine has been sutured. Suspending loops are now cut and removed.

PLATE 6.—There remains now only the last or convex third of the walls to be closed. What was a complete section of the bowel has been transformed into a transverse incision extending only one-third of the circumference at the convex border. Owing to the impossibility of holding the divided edges of the last third in sero-serous apposition, and yet unite this third in the same manner as the previous two-thirds, it is necessary to proceed somewhat differently to achieve this same result. The suture itself, being fixed at each end, can now be utilized as suspending threads; the free end is held in one hand of an assistant, and the needle end where it emerges from the bowel wall in the other hand, while the operator is free to proceed with the suture. This he does by passing the needle from where it emerges on one cut end to the other cut end, there to be inserted from without inward, at a point corresponding to that which would be pierced if the walls were in apposition, serous coat to serous coat.

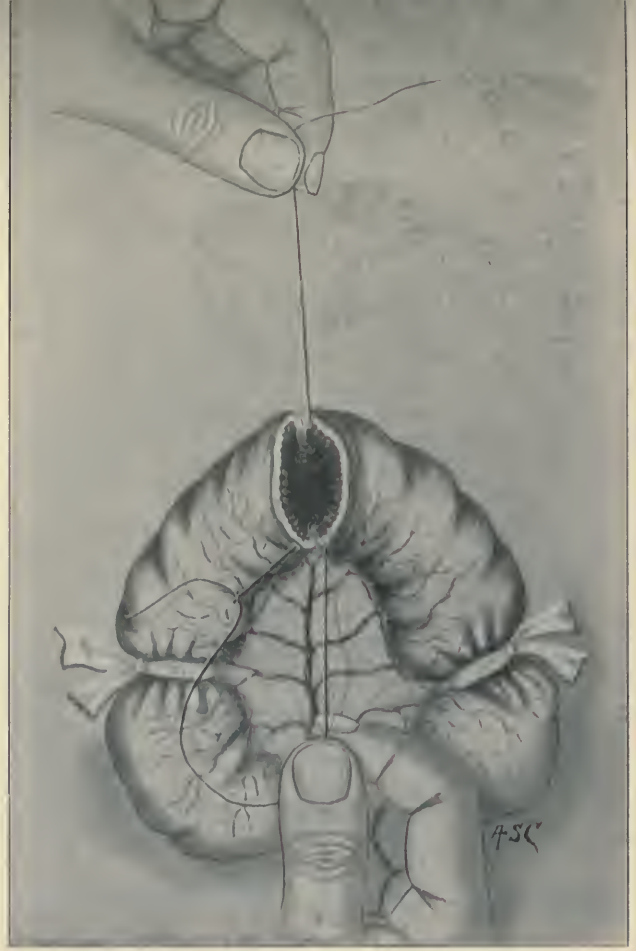


PLATE 5.

PLATE 6.

That this danger of stitches yielding is not hypothetical will be seen from the statistics of Rosenthal, who in 1892 collected 151 cases of intestinal resection followed by end-to-end union, with a mortality rate of 42.3 per cent—50 per cent of this death-rate being due to peritonitis, of which he speaks as follows: "The frequency of peritonitis was owing to the escape of feces into the peritoneal cavity, due to the inefficiency of the suture or to fecal accumulation. That perforation-peritonitis claimed the most victims is a striking proof of the inefficiency of the present methods of intestinal suture."

6. The formation of a diaphragm is an absolutely necessary result following any method of union which adheres to the Lembert principle—*i. e.*, sero-serous apposition. But the size of this diaphragm may range from one so small as to be practically insignificant, to one of sufficient size to occlude the bowel lumen, and cause obstruction. This variation depends entirely upon the method of suture employed, and the care with which the technique is carried out.

In methods requiring two or three rows of sutures, the lumen of the tube will of necessity be encroached upon to a greater extent than it will by a method in which but one row of stitches is employed.

Cases are to be found in the literature where death has been demonstrated to be due to obstruction following the infolding of too large a surface in inserting the Czerny-Lembert suture.

In examining specimens after performing the Maunsell method, a marked projecting ridge is to be seen on the mucous surface at the site of the longitudinal incision, which is closed with Lembert stitches; while the site of the circular suture is located with much more difficulty. That this diaphragm is practically the only form of postoperative stricture, and that stricture due to cicatricial contraction rarely if ever occurs, has been well brought out by W. A. Evans. That a broad serous approximation is unnecessary has been emphasized by J. B. Murphy in his statement that "a line of approximation is as good as half an inch."

7. That the second row of sutures in intestinal work is considered a possible source of danger will be seen by referring to Senn, who says that "the second row of sutures in the Czerny-Lembert has often been the cause of gangrene of the inverted margin of the bowel would not be difficult to prove by many post-mortem records." And again, in the admonition given by Maunsell: "A double line of sutures should never be applied in intestinal surgery. It obstructs

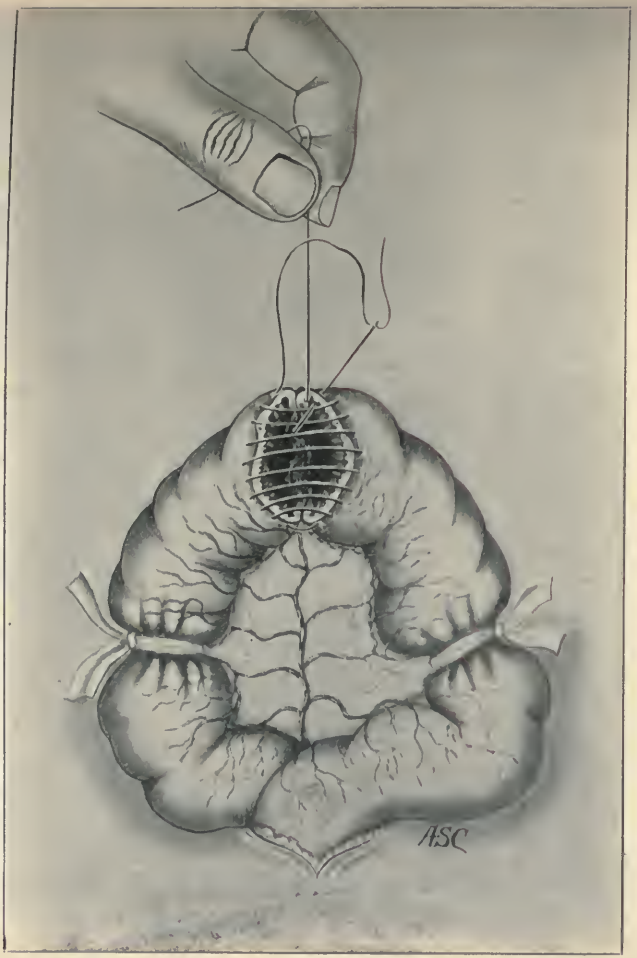


PLATE 7.—The needle, after having entered the lumen, is passed out again on the same side, one-eighth inch distant; then over to the opposite cut end, where it is inserted from without in, and again emerges from within out, on the same side. This step—the taking of a bite—is repeated alternately on opposing margins until the necessary number of stitches have been inserted. It will be observed that when the needle enters the lumen the last time, it makes what might be termed a half-stitch, as it does not return again *through* the wall; but having reached the point where the suture was commenced, the free end and the needle end will complete the last stitch, when tied, on the mucosa. The needle at this point is then brought out of the lumen at the angle of wound alongside of the free end of the suture. The cross-over stitches are next carefully drawn up, thus bringing into contact the opposing serous surfaces at every point except where the suture ends still protrude.

PLATE 8.—The suture ends are held by an assistant, while the operator inserts the eye-end of a threaded needle between any two of the previously inserted stitches, preferably about opposite the point of emergence of the suture ends.

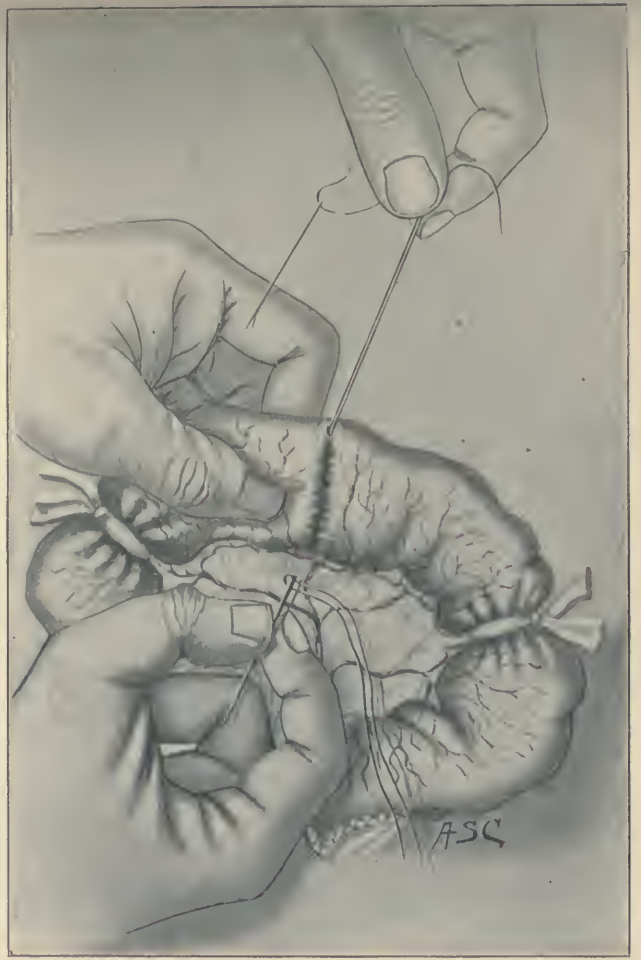


PLATE 7.

PLATE 8.

the circulation too much, interfering with firm plastic peritonitis, and in some cases causing gangrene of the inverted portion of the gut."

8. In stitches which penetrate the entire thickness of the bowel wall, the *location of the knot* is of vital importance. If located on the mucosa it has been demonstrated conclusively that there is practically no danger. If located upon the serosa, the occurrence of peritonitis, as a result, is decidedly more liable to supervene. When the knot is tied on the peritoneal side of the bowel wall, the apposition of the serous coats is beneath the knot, and union takes place between these two surfaces, as in any suture; but the suture material surrounds this area of apposing bowel wall, and there is no barrier formed to prevent infective material, which may be present on the knot, from extending to the free peritoneal cavity. If, on the other hand, the suture is inserted in such a manner that the knot is on the mucous surface of the bowel, the area of apposed serous surfaces surrounds that portion of the stitch which is not in the lumen. That small, almost microscopic, portion of stitch which lies between the two apposed surfaces is all that can theoretically be said to be *in* the free peritoneal cavity. But, practically speaking, even this portion is not so situated, because of its being embedded in the adhesion which follows between these two surfaces, which separates it from and acts as a protective barrier between this part of stitch and the free peritoneal cavity.

Even if infection should travel up this stitch, it would not enter the free peritoneal cavity; for, following the line of least resistance, it would pass along the suture material through the walls to the opposite side of the inverted edges, and so into the lumen again.

Halsted recommends, and lays down as general rules, that no single stitch should penetrate both serosa and mucosa, and that all stitches should include some fibers of the submucous coat. But neither in the original article nor in any other at our disposal does Dr. Halsted exclude the duodenum from these rules. In the duodenum are to be found the so-called glands of Brunner, small, long, sometimes compound glands, lined with columnar epithelium; the duct opening upon the mucosa of the duodenum. The glands are peculiar in that the fundus is located in the submucosa, and in being confined to the duodenum.

It will be readily seen that in a stitch entering the serosa of the duodenum and including fibers of the submucous layer as recommended by Dr. Halsted, there is no certainty that it will not pass through one or more of these Brunner's glands. If this occurs, then

PLATE 9.—The eye-end of threaded needle is made to emerge alongside of the suture ends, and is then withdrawn a little, which causes its thread to form a loop, through which the assistant passes the ends of the suture. The operator next withdraws the threaded needle, at the same time bringing with it the suture ends, and they present externally at the point of withdrawal of the needle. The serous coats throughout the entire circumference are now in apposition, and the suture ends can be tied.

PLATE 10.—By slight traction on the suture ends the opposing mucous surfaces are brought in close contact; the suture ends are then tied firmly, and deep between the serous coats, thus tying the knot upon the mucous coat, and the ends then cut off short.

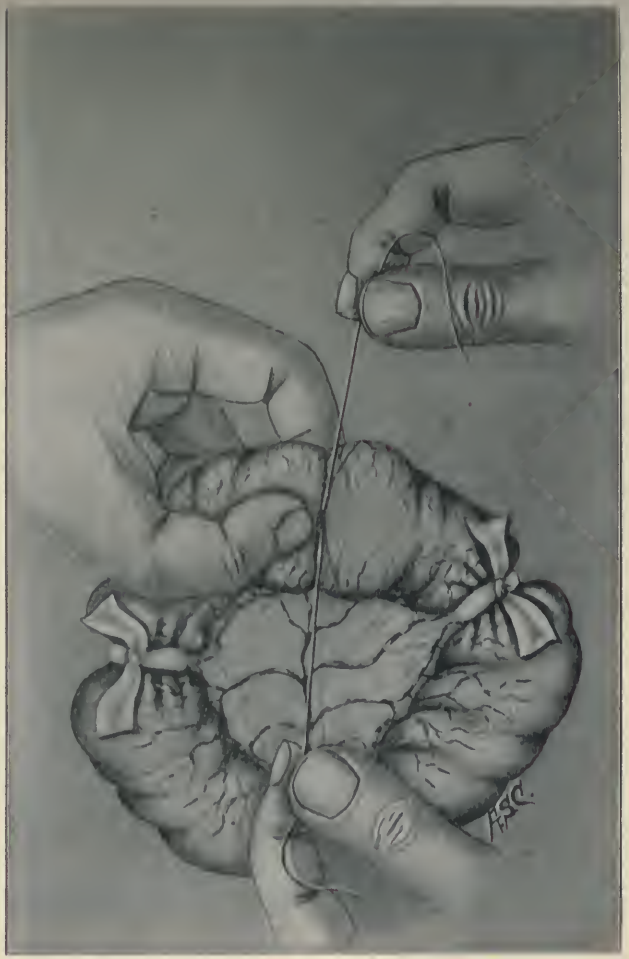


PLATE 9.

PLATE 10.

we find a suture including both serosa and mucosa, and which is knotted on the serosa. Of course, each and every stitch put into the submucosa of the duodenum may not involve the fundus of a Brunner's gland. But, not knowing their situation, they cannot be intentionally avoided, and as this element of danger cannot be purposely excluded, it is an unsafe procedure to insert in this locality stitches which include submucosa, and are knotted on the serosa.

Owing to the danger of a stitch yielding, it is likewise unsafe to employ stitches which do not penetrate into the submucous coat. This fact will be of practical importance only in operations in which sutures are to be inserted into the duodenum, as in pyloroplasty, pylorectomy and gastroduodenostomy.

In other portions of the intestinal tract there is a possibility of complying with the rules laid down by Dr. Halsted, but there is also a strong probability that one who has not had an extensive experience in intestinal suturing will not do so.

On account of the comparative thinness of the submucosa, it will be found extremely difficult to include some fibers of this coat without penetrating into the lumen; though to experienced men it may be comparatively easy. Yet here, too, the submucosa must be included in order to prevent yielding of stitch; therefore, by including all layers of the intestinal wall and placing the knot in the lumen, both of these dangers may be avoided.

The most important reasons advanced against the universal adoption of the Maunsell method are, first, the second incision and invagination, and secondly, the stitches being plainly visible on the serous coat after the suture is completed. It is noticed that in all modifications of this procedure an effort has been made to remove the second incision, first by making it continuous with, and at right angles to, the transverse incision; and more recently by Wiggin, who makes no second incision, and closes the last portion by employing a few Lembert stitches with no attempt to put the knots in the lumen.

The method here presented, in effect similar to the Maunsell, is claimed to remove the objectionable features, while still retaining the advantageous characteristics of that mode of union. It does away with the necessity of a second incision and the invagination, and all knots are placed on the mucosa.

In using a simple circular stitch, as does Maunsell, there is danger of infection of the peritoneum resulting, because the margins of the gut wall, included in the bite of the stitch, are liable to slip, and lead to fistula, if nothing worse. Or infection may travel along the suture material to the free cavity, as the external portion of the

PLATE 11.—The intestine, which has been flattened while tying the knot, is now relieved of pressure and allowed to assume its normal cylindrical contour, when the suture ends are seen to slip within the lumen. The enterorrhaphy is now complete, all knots are inside, and no stitches are visible on the outside.

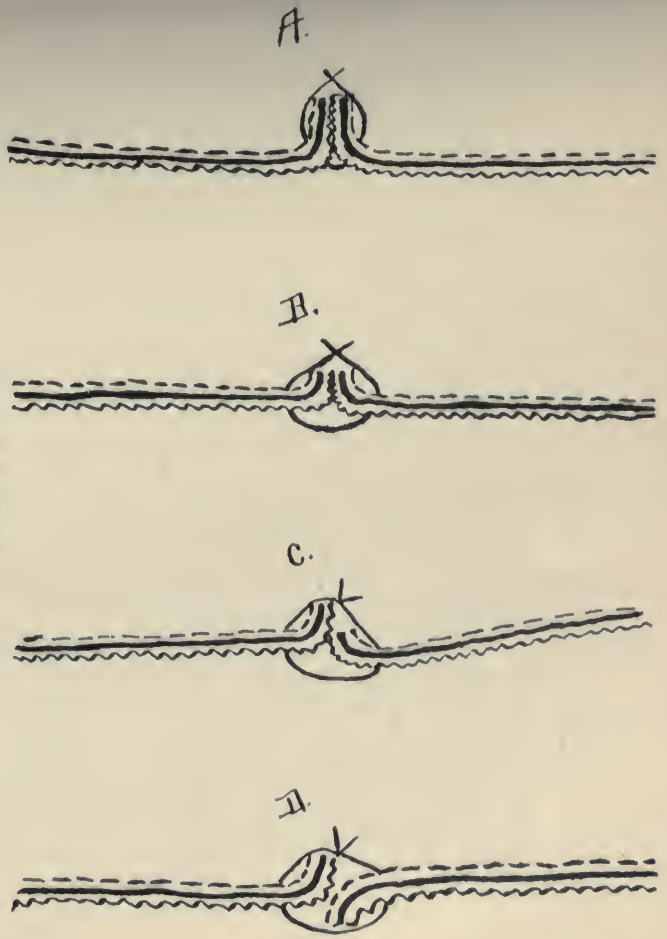


PLATE 11.

PLATE 12 (Schematic).

stitch is not so completely buried between the apposed surfaces as in the square stitch.

The possibility of the cut edges slipping by one another, when included in the circular stitch, is shown in Plate 12: *A* represents the ordinary circular or Maunsell stitch, including within its grasp the inverted margins of the cut ends; *B* shows the relative position which the suture and ends may assume owing to pressure or distention; *C* illustrates the condition which may follow if more force be applied to one cut end than to the other. And then, if with a slight aggravation of the cause the pressure increases, one cut edge slips by the opposite edge and a sero-mucous apposition results, as shown in *D*, a sinus connecting the lumen of the bowel and the peritoneal cavity, with a fecal fistula as a very favorable outcome.

With the square stitch such an occurrence cannot take place; and at the same time the external portion of the stitch is separated from the free cavity by serous apposition and adhesion, to a much greater extent than is the case when a circular stitch is employed.

Circular enterorrhaphy, with all knots in the lumen, has been performed in eleven instances upon the human being. Of these, three did not recover. But in neither instance could the death be attributed to the method of suturing. Two died of shock immediately following the operation; the third dying on the eighth day, and at post-mortem the line of suturing was found to be intact.

These various operations consisting of circular enterorrhaphies and pylorectomies have been done in Chicago by Franklin H. Martin, E. Wyllys Andrews, Alex Hugh Ferguson, W. E. Schroeder, Emil Ries, and the writer.

ACUTE INTUSSUSCEPTION IN AN INFANT; OPERATION, RECOVERY, RELAPSE IN THREE AND ONE-HALF MONTHS; SECOND OPERATION, AND RECOVERY.

BY PHILIP SCHUYLER DOANE, M.D., CHICAGO.

On January 7, Dr. Christian Fenger read a most interesting and exhaustive paper before the Medical Society of Rush Medical College on "Acute Infantile Intussusception." The discussion which followed brought to my mind a very unique case which occurred in the practice of Dr. Fernand Henrotin, about one year ago, and in which I had an opportunity of assisting. It was a case of acute infantile intussusception occurring in a female child three months of age.

Operation was performed seven hours after appearance of first symptoms, and was followed by uninterrupted recovery. Three and one-half months later there was a recurrence, with operation and recovery.

From the parents, who are both well and strong, I obtained a negative history as to gastric, intestinal, tubercular, or specific disease. She was the fifth child, delivery normal, and her brothers and sisters had always been well, with the exception of those diseases incident to childhood. Her own health up to the time of the first attack had been excellent. Bowels had always been regular and normal since birth.

On the morning of March 7, 1900, the child was somewhat peevish, with loss of appetite. Bowels had been constipated the day previous, but a movement had taken place, the feces being firm aud small in amount. On the morning of the seventh no bowel movement had taken place. About ten o'clock, while being rocked in the lap of an older sister, she screamed out suddenly, turning very pale, with cyanosis of lips and mucous membranes. The mother thought she was about to die, and sent at once for a physician. A few moments after onset of attack the child began to gag and attempt to vomit. After one hour she vomited freely, followed every ten or fifteen minutes with a vomitus of yellow mucus. Before the arrival of the physician, the mother attempted to move the child's bowels by an enema of warm water, and also gave castor oil, which was not retained. Upon the doctor's arrival the following observations were made: Well nourished child of normal development. Generally cyanotic in appearance, which was increased during the attacks of vomiting, which occurred every ten

or fifteen minutes. Pulse rapid and weak. Temperature subnormal. Abdomen slightly distended and recti muscles tense. Tumor mass detected in ileocæcal region about nine centimeters in length and five centimeters in width.

No bowel movement had taken place up to this time. Intussusception being suspected, an injection of air was made per rectum with apparently no result. One hour later, or three hours after onset, the child passed blood and mucus per rectum. A high rectal enema was given, but with no reduction of tumor.

The child was then removed to St. Joseph's Hospital, and at 5 P.M., or seven hours after first symptoms, and after hurried preparation, an incision was made directly over tumor mass, parallel with its long axis. The previous diagnosis was substantiated by finding about fifteen centimeters of small intestine with a portion of the cæcum invaginated into the large intestine. It was a single intussusception, and from the edge of the intussuscipiens protruded the tip of the appendix. The invagination was easily reduced, there being but few adhesions and the intestinal wall but slightly edematous. After reduction the gut appeared slightly hyperemic but otherwise healthy. The wound was closed with interrupted catgut sutures, with horsehair in skin. The child made an uneventful recovery, and was allowed to return home with its mother in ten days.

For the next three and one-half months the child was normal in health and gained in flesh and strength. Bowels moved the second day after operation and daily thereafter.

About 1.30 o'clock on May 30, 1900, the mother noticed the child to be unusually peevish. At 2.30 the child vomited, and after that attempted to vomit every ten or fifteen minutes. The symptoms were the same as in the first attack, with bloody stool two hours after onset. The mother made her own diagnosis, and at once sent for the physician. The child was seen at 5.30 P.M., and operated upon at St. Joseph's Hospital at twelve o'clock midnight, or ten hours after first appearance of pronounced symptoms. At the time of the operation the child was in a serious condition, and little encouragement was given the parents. An incision was made directly through the old cicatrix, as the tumor was located the same as in the first attack. Upon opening the abdomen the invagination appeared the same as in the first operation, excepting that the bowel was blue and more edematous. Dense adhesions had formed, and a simple reduction seemed at first impossible. An attempt was then made to reduce the intussusception by elevating the child by

the feet, and inflating the intestine with air, the inflation being watched with great care. Considerable difficulty was experienced in keeping the inflated bowel from forcing itself through the abdominal incision. The inflation took place up to the intussusception, but did not extend beyond, nor did it seem to aid whatsoever in reducing it. This proving unsuccessful, the child was again placed on the table, and after much patience and careful manipulation the invagination was reduced.

The appendix had been incarcerated in the mass and had become partially gangrenous. It was therefore removed. Three stitches of fine catgut were then placed in the walls of the ileum and cæcum, near their junction, in such a way as to make almost an acute angle; this being done to prevent a future recurrence.

The abdominal wound was then closed with catgut and horsehair, and the patient returned to bed in a very critical condition. She remained in this condition until the next morning, when a bowel movement was obtained, and from that time on her condition was good.

I saw her less than a month ago, and found her a healthy, strong child, with a firm cicatrix marking the two operations of less than a year ago.

The success in this case is attributable to three factors: (1) The general good health of the infant previous to the attacks; (2) the very early diagnosis and almost immediate operation; (3) the rapidity of the operation and skilful technique of the operator.

IS THERE SUCH A CONSTITUENT OF THE URINE AS "UREINE"?

BY WALTER S. HAINES, M.D.,
Professor of Chemistry in Rush Medical College,
AND
CHARLES S. WOODS, M.D.,
Fellow in Chemistry in Rush Medical College, Chicago.

During the past summer a cablegram published in the daily press announced that a paper had been read by Dr. William Ovid Moor, of New York, at the Thirteenth International Medical Congress then meeting in Paris, claiming the discovery in the urine of a new and highly toxic constituent whose retention in the system was the cause of uremic poisoning. The full communication in which this startling announcement was made was published in the *Medical Record* of September 1, 1900, under the title "The Discovery of 'Ureine,' the Principal Organic Constituent of Urine and the Cause of Uremia." This discovery, if a real one, was clearly a most valuable addition to our knowledge of the urine, and possessed particular importance in connection with the practice of medicine. The article, therefore, attracted much attention and was read with deep interest by the profession.

Even a casual perusal, however, of the paper by one familiar with physiological chemistry discloses the unreliability of its statements, the article being full of such crudities and errors as to take from it all possible scientific value, and we are convinced that few, if any, who have had the advantages of a training in our modern chemical laboratories would be led astray by it. The mass of the profession, however, are scarcely sufficiently familiar with the chemistry of the urine to discover the errors of the article, and there is no doubt that the large majority of physicians who read Dr. Moor's paper are confidently of the opinion that he has actually made an important discovery and that "ureine" is, as he claims, the chief constituent of the urine and the true cause of uremia. Numerous communications from physicians in various parts of the country convince us of the accuracy of this latter statement, and for their benefit it seems desirable to point out the fallacies of the article and to show that "ureine" has no real existence.

To understand the subject more fully it is well to give briefly the method pursued by Dr. Moor in extracting "ureine" from urine, and also to state the properties he ascribed to it. The process is as follows: The urine is evaporated at a moderate temperature to a small bulk and is then treated with solution of silver nitrate, to

decompose the chlorides and phosphates present, until no more precipitate is formed. The mixture is filtered and the filtrate still further evaporated until a considerable part of the water has been expelled. To the resulting liquid one-half its volume of absolute alcohol is added, and then oxalic acid, first in the form of a powder and afterward in alcoholic solution, to precipitate urea as urea oxalate. The mixture is again filtered, the precipitate being washed with absolute alcohol, and the filtrate is reduced to a low temperature to facilitate the separation of sulphates and other solids, and again filtered. A solution of mercuric nitrate is then added, to remove coloring matter, until no further precipitate is formed, and the mixture neutralized or rendered slightly alkaline with sodium carbonate. The mixture is once more filtered and again evaporated to expel the alcohol, when "ureine" is left. In a subsequent brief communication, Dr. Moor gives a somewhat different process for extracting "ureine;"[1] the changes, however, are unimportant, and in no way eliminate the gross errors of his first method.

The properties of "ureine" are thus described by Dr. Moor: "Ureine resembles in aspect olive oil, is of a pale yellow color, of a slightly bitter taste, gives to the touch the impression of a fatty substance, and produces on paper spots resembling fat spots, though not so marked as those produced by fat. Its specific gravity is about 1.270; it is, therefore, much heavier than water and about as heavy as glycerin. It is freely miscible in all proportions of water and alcohol. . . . Its own reaction is very slightly alkaline, almost neutral." It decomposes at a temperature of about 80° C., and consequently all manipulations in extracting it must be made at a temperature below this. It has a great affinity for oxygen, and acts, therefore, as a strong reducing agent, rapidly decolorizing potassium permanganate and reducing ferricyanide of potassium to ferrocyanide when in contact with ferric salts. It is possessed of toxic properties, killing rabbits, when injected subcutaneously in the proportion of 3½ to 4½ cubic centimeters to the kilogramme, in from three to eight hours. "Ureine" is claimed to be the most abundant constituent of the urine, being present in a quantity double that of urea; it is very nearly equal in amount, therefore, in round numbers, to all the other constituents of the urine put together.

Such, in brief, is the method described by Dr. Moor for extracting "ureine" from urine, together with its alleged properties, and we will now present proofs of the non-existence of the substance.

[1] *Medical Record*, Sept. 22, 1900, p. 471.

I. It is in the highest degree improbable that, if such a substance as "ureine" actually existed in the urine, it would not long ago have been discovered. Scores of skilled chemists in all parts of the civilized world have for years past been daily examining hundreds of specimens of urine for scientific and clinical purposes. Every resource of exact investigation has been brought to bear on the composition of this fluid in health and disease. It is, therefore, practically unbelievable that a substance possessed of such markedly active properties as those claimed for "ureine," and existing in the urine, moreover, in great abundance, exceeding in amount that of any other constituent, should not have been isolated years ago.

It is quite true that in many old and well known substances new constituents have been discovered even in recent years, as, for example, new alkaloids in opium, new salts in sea water, and new elements in the atmosphere. But in all those cases the newly discovered bodies have existed in small, usually minute proportion, and have in no case constituted, even remotely, the chief constituent of the compound. "Ureine," however, is claimed to be by far the most abundant and in most respects the most important of the components of urine, and its discovery at this late hour would be comparable with the discovery to-day of morphine in opium, sodium chloride in sea water, or oxygen in the atmosphere. The cases, therefore, are not at all comparable, and we may say with assurance that there is, to begin with, an almost overwhelming improbability of the discovery in urine at this late date of a substance so large in amount and so active in its properties as "ureine."

II. The foundation upon which Dr. Moor largely bases his discovery of "ureine" has in fact no existence, and necessarily, therefore, the alleged new body is at once discredited.

The foundation referred to is given in this following statement with which the article on "ureine" in the *Medical Record* begins. The italics are our own, and we have corrected what is undoubtedly a typographical error, changing ferro- to ferri-cyanide of potassium, the latter chemical being clearly shown to be the one referred to by the author both by the context and also as later on he speaks of it as the "red prussiate," an invariable synonym of the ferricyanide:

"About one year ago I began studies regarding certain substances which could be easily oxidized, and which gave as a proof of their easy oxidizability the same characteristic blue reaction with a solution of ferricyanide of potassium and ferric chloride as we observe when morphine or any of its salts is brought in contact with a solution of these two salts of iron. To my great astonishment I found

that the human urine contained a large quanity of some organic substance, which gave this interesting blue reaction in a very intense manner. *Numerous and exact investigations forced me to the conclusion that none of the known organic or inorganic components of urine could account for this intense blue reaction, and that therefore some chemical body until the present unknown must be the cause of this strange phenomenon.*"

The author is confessedly not aware of the fact that several of the well known components of the urine, among others uric acid and the urates, are capable of producing the reaction spoken of with great readiness. Nothing is easier of demonstration; a few milligrammes of uric acid or of a urate added to a solution of potassium ferricyanide and ferric chloride causes the blue color spoken of above to appear readily and abundantly. This reaction, moreover, has been known for years, and was long since published in standard works on chemistry.[1] Such being the case the very groundwork and starting-point upon which the Doctor based his investigations disappear, and with them every *a priori* presumption in favor of the existence of the new body. It is not necessary consequently to invoke the presence of another substance in the urine to explain a reaction which is easily and abundantly given by long known constituents. Had Dr. Moor in his "numerous and exact investigations" taken the small pains to try the effect on potassium ferricyanide and ferric chloride of so well known and so important a constituent of normal urine as uric acid he could easily have explained without further labor why urine produces with these chemicals the blue color which excited his curiosity—and the world would probably have been spared his wonderful discovery.

We may state in this connection that another similar error appears in the article later on when, inferentially, the statement is made that the power possessed by urine of decolorizing potassium permanganate is due to "ureine." The author is evidently unaware that uric acid and several other well known constituents of the urine have this power in a marked degree—in fact, one step in one of our standard processes (Hopkins's) for determining the amount of uric acid in urine depends upon this very action.

III. The above considerations afford strong presumptive proof of the non-existence of "ureine." Direct and positive evidence, however, is at hand to the same effect. "Ureine" is stated to be a fluid of a specific gravity of about 1.270. If, therefore, we evaporate a

[1] Watts' Dictionary of Chemistry, vol. ii, p. 248, 1872; Gmelin's Handbook of Chemistry, vol. vii, p. 473. 1848.

specimen of urine at a temperature below the alleged decomposing point of "ureine" we should never be able to secure a dry residue, the liquid "ureine" always causing the evaporated material to be moist and pasty, much as if glycerin or other permanent fluid were mixed with it. But such is by no means the case, as a direct experiment easily showed. We secured a specimen of urine from an adult passed at the time of day (between 5 and 7 P.M.) when it is alleged there is the greatest amount of "ureine" present. Ten cubic centimeters of this was placed in a shallow platinum dish and heated to a temperature of 65° C. or slightly below for several hours. It gradually evaporated, and by patiently continuing the heat a practically dry residue was obtained. The dish with this contained residue was then placed over phosphoric anhydride in a desiccator and allowed to remain over night. In the morning the residue was absolutely dry; it was entirely free from stickiness or the slightest sign of the presence of a liquid. This condition obviously would have been impossible had such a liquid as "ureine" existed in the urine, especially if present in the alleged proportion of four per cent or more—or, in other words, a quantity nearly equal to all the solid urinary constituents put together.

IV. To test the process described by Dr. Moor for extracting "ureine," and to procure, if possible, a specimen of the newly discovered body for examination, we secured a specimen of perfectly normal urine from a healthy adult and treated it exactly as directed, great care being taken never to raise the temperature above the point prescribed by the article, since the claim is made that "ureine" is easily decomposed by even a moderately elevated temperature. Following the directions precisely we obtained, upon gentle evaporation of the final fluid until the odor of alcohol had disappeared, a liquid having in general the properties of "ureine" as described in Dr. Moor's article. The yield was 3.901 per cent of the urine employed. It was of a pale yellow color, of a slightly bitter taste, of faintly alkaline reaction, of an oily appearance, and fairly miscible in all proportions with water and alcohol; three cubic centimeters of it given hypodermically to a young rabbit weighing 727 grammes caused marked evidence of intoxication, as indicated chiefly by decided diuresis, prostration, and hebetude, which lasted between five and six hours, when the animal gradually recovered. We might suppose, therefore, that we had really extracted from urine Dr. Moor's new body. But a very simple procedure soon showed that the substance in question was far from being a true proximate principle, but was in reality merely a somewhat concentrated solution in water of certain solids. Five grammes of the

"ureine" was placed in a flat-bottom platinum dish and heated to a temperature never exceeding 50° C., which is much below the point (80° C.) at which it is said to decompose. The liquid gradually lost volume and eventually became converted into an almost dry, solid residue; by placing this in a desiccator over phosphoric anhydride for several days all sensible moisture was entirely removed and a perfectly dry solid resulted. The weight of the residue was 2.398 grammes. Clearly, therefore, "ureine" cannot be a proximate principle, as claimed, but is only, as before stated, a concentrated solution of certain solids in water, and it may be easily reduced to the solid form by patient evaporation. That this was true was further proved by adding to the above residue enough distilled water to make up the weight of the original "ureine," when the solids readily passed back into solution and a fluid, having all the properties of the original "ureine," was obtained. Both analytically and synthetically, therefore, we demonstrated that "ureine" is merely a solution of certain solids in water. The nature of these solids we found upon examination to be just such as we should expect from a theoretical consideration of the method employed in isolating the "ureine." The absolute alcohol used in the final extraction is rendered hydrous when mixed with the imperfectly evaporated urine, and it becomes a solvent to a greater or less degree of almost all the urinary solids and of the various chemicals used, some of them more or less changed by chemical reaction. Upon evaporation of the alcohol a concentrated aqueous solution is left of these numerous substances. Chief among them we found the nitrates of sodium, potassium, magnesium, and calcium (coming from the decomposition of the chlorides and phosphates of those metals by the silver nitrate used), urea, compounds of oxalic acid and of mercury, carbohydrates, and creatinine; but there were also small amounts of many of the other solid constituents of the urine used. One gramme of the "ureine" evaporated to dryness in a platinum dish and carefully incinerated gave an ash weighing 0.185 gramme, or 18.5 per cent. As the results of this and numerous other tests we may say with certainty that *Dr. Moor's "ureine" is simply a strong aqueous solution of well known urinary solids and of chemicals used in operating on the urine.*

V. Considerations in connection with the specific gravity of the urine afford conclusive proof of the non-existence of "ureine." The known substances in the urine fully account for its specific gravity; the supposition, therefore, of the presence in it of four per cent of a body like "ureine" with a specific gravity of 1.270 is wholly untenable. The specific gravity of urine corresponds to the amount of

solids long recognized as existing in it, and affords no room for anything else, except possibly in minute proportion.

An experiment was performed to determine the extent to which "ureine" would raise the specific gravity. To a dilute urine, whose specific gravity taken by an accurate Westphal balance was 1.0109, one per cent of "ureine," carefully extracted by Dr. Moor's method, was added and the specific gravity observed again. It was found to be 1.0131. In other words one per cent of "ureine" raised the specific gravity 2.2 degrees, and we are justified in believing that four per cent (the alleged normal quantity) would raise it eight or ten degrees. As the specific gravity of the urine, after accounting for the known constituents, has no excess, where are these eight or ten degrees concealed? Their absence clearly proves that "ureine" is a myth.

VI. Dr. Moor claims that in "ureine" he has found the true poisonous principle of urine. If such were the case it is manifest that if we were to destroy this substance the toxicity of the urine would disappear. As "ureine" is decomposed by a temperature of 80° C. and upward, heating urine to 100° C. or higher ought quickly to remove its poisonous properties. But this is by no means the case. Bouchard[1] showed several years ago that evaporation of urine does not diminish its toxicity, and that if urine is evaporated to dryness on the calcium chloride bath (and, therefore, at a temperature considerably above 100° C.) the residue kills rabbits if given to them hypodermically. In such residues no "ureine" could possibly exist, as it would have been decomposed during the evaporation. These facts furnish another proof that there is no such substance as "ureine" and clearly show that we do not need to assume its existence in urine to explain uremia.

Other proofs, both theoretical and experimental, might be presented to show the complete non-existence of "ureine." But we believe we have already given fully as many as the value of the paper deserves. The article is a presentation of hasty conclusions based upon unskilful and inadequate experimentation and upon insufficient acquaintance with the known chemistry of the urine. As it bears internal evidence of its valuelessness to one skilled in physiological chemistry, it is only for the sake of the rank and file of the profession, who are not in a position to detect its misstatements, and who, therefore, may have been led astray by it, that we present the above.

[1] Lectures on Auto-intoxication in Disease, by Ch. Bouchard; translated by Oliver, pp. 48 and 54.

BOOK REVIEWS.

INTRODUCTION TO THE STUDY OF MEDICINE. By G. H. Roger, Professor in the Faculty of Medicine of Paris. Authorized Translation by M. S. Gabriel, M.D. New York: D. Appleton & Co. 1901.

This book is a translation of a published course of lectures delivered in 1897–98, at the University of Paris. An introductory course has been established by the Faculty of Medicine which is designed to furnish beginners with a sort of bird's-eye view of the ground they are expected to traverse. The author endeavors to show what is the object of medicine and by what methods it may be studied.

This work is something of a departure from the ordinary lines of medical text-books. It is difficult to know in what division to place it. A brief reference to its contents will give an idea as to the ground covered. After a brief chapter that serves as an introduction, the author takes up the general causes of disease. These he divides into four great groups—mechanical agents, physical agents, chemical agents, and animate agents. The first of these groups includes all those things that act in a mechanical way, such as cuts, wounds, bruises, and contusions. Among the physical agents are alterations in atmospheric pressure, and heat, cold, light, sound, and electricity. Among the chemical agents are caustics and toxins. The writer defines the toxins as substances introduced into or formed within the organism, capable of abolishing or disturbing the life of anatomical elements, by either directly or indirectly modifying the liquid medium containing them. They are divided into two groups—the exogenous, which are formed before their penetration into the organism, and the endogenous, those which are generated within the body. The first group is divided into the habitual and the accidental, while the second is divided into those which are due to parasites or infectious agents, and those due to cellular life.

The fourth group of animate agents receives by far the most attention. This is a brief description of the various bacteria and parasites which affect the human. In discussing the general etiology of the infections, the author makes two divisions—the heteroinfections, having an external origin, and the autoinfections, of which we carry the germs even under normal conditions. Such a division he recognizes as one only approximately correct, as even the autoinfective parasites must of necessity at some time be taken from without. The division marks a well known group of microorganisms which are commonly found in the body in health, but are only capable under exceptional circumstances of causing disease. These are readily distinguished from the infections of anthrax, hydrophobia, syphilis, and tubercle, which, as soon as they gain a foothold, under all circumstances excite a train of morbid phenomena. In this chapter we have a splendid discussion of the general phenomena of immunity.

From etiology, by an easy transition, the author passes to the pathologic portion of the work by a description of the disturbance of nutrition. The pathology of the fetus is described, together with that of the influence of heredity in the development of disease. The discussion of inflammation and pus formation is essentially that of Cohnheim. The writer evidently has little leaning

toward the later view which would relegate the term inflammation to the obsolete words.

In the chapter on the evolution of disease, the author gives free rein to the French fancy for special divisions. In speaking of typhoid fever, three main types of the disease are given: (1) According to the course; (2) according to the morbid elements; (3) according to the localizations. In the first division we have four; namely, those which are abortive, prolonged, speedily fatal, or with relapses. In the second we have the ambulatory, mucous, inflammatory, bilious, hemorrhagic, ataxic, adynamic, putrid, and pseudoral. In the third, the nervous, thoracic, gastric, icteric, renal, cardiac, and septicemic symptoms.

In the examination of the sick the author, while he admits having given but a cursory outline of the subject, thinks he has demonstrated that the solution of problems raised by the examination of patients is not to be found in the laboratory, but at the bedside. He is thoroughly alive to the value of experimental pathology, but thinks that the physician should largely rely upon ordinary clinical procedures. The work closes with a brief reference to therapeutics.

In passing judgment upon this work, we are in some doubt as to its value for the beginner. Perhaps it would be well to have every one initiate their studies by such a bird's-eye view of the whole subject as this work is intended to give, but we fear the undergraduate would have to devote as many years to the understanding of this volume as he would to the study of medicine. To the practitioner this work will be of the most value, giving him, as it does, a quite accurate view of the relation of the different departments of medical science to each other.

The work is well issued by the publishers, the translation is in the main satisfactory, though we fear the author has adhered too closely to the French text. This does not make as easy reading as a freer rendition would.

Operative and Practical Surgery. For the Use of Students and Practitioners. By Thomas Carwardine, M.S., F.R.C.S. Price, 10s. 6d. Bristol, England: John Wright & Co. 1900.

The author of this book is assistant surgeon of the Bristol Royal Infirmary. He has produced a work which will be much more useful for the student than for the practitioner. It does not aim to be a systematic or exhaustive work upon surgery, but rather to present the practical side of operative work. It is really designed as a supplement to the more exhaustive works upon surgery dealing especially with surgery in its every-day applications. The manual is intended to be used only in conjunction with clinical and practical work, to which it is intended to act as a guide. The importance of practical instruction in surgery is emphasized by the author in his preface when he says: "The reader should study his general surgery and surgical pathology from the excellent works available. Instruments are best studied by watching operations and by inspecting the instrument cabinet of large institutions; hence, with few exceptions, their representation has been omitted from this book. Anesthetics must be learned from the practical instruction of an anesthetist, supplemented by the manuals on the subject."

The work begins with some general considerations dealing with antiseptic dressings, lotions, powders, hot and cold applications, and such mechanical adjuncts as strapping, drainage tubes, and irrigations.

J. O. Symes contributes a very short chapter on surgical bacteriology. There is a short chapter on the examination of patients.

Section II is on bandaging, dislocations, and fractures. Then follows a chapter on the factors influencing operative results. There is a rather full description of the management of hemorrhage and the ligation of arteries for aneurisms. In speaking of the veins and lymphatics, we are told that on no account must an operation be performed on a vein acutely inflamed. In the treatment of varicose veins, torsion and extraction without ligature is said to be the operation preferred in the West of England. It is thought to be the best method. The veins are cleanly exposed through multiple half-inch incisions, and the exposed portions are divided between two pairs of forceps; each end is then freed from the surrounding cellular tissue and is twisted until it breaks away several inches from the incisions.

The ordinary extemporaneous normal salt solution made with table salt may answer for emergencies, but the writer advises that the surgeon keep a bottle of sterilized salt solution resembling as nearly as possible the composition of the blood plasma and of the same density:

Chloride of sodium	200 grains.
Chloride of potassium	12 grains.
Sulphate of sodium	100 grains.
Carbonate of sodium	100 grains.
Phosphate of sodium	8 grains.
Water, distilled	½ pint.

This is sterilized, and at the time it is used its bulk is increased to two pints by the addition of boiled water.

The usual operations upon the genito-urinary organs of men and upon the pelvic organs of women are described. There is a chapter upon general points in abdominal surgery.

The work closes with sections upon extraction of the teeth and the surgery of the nose, larynx, ear, and eye. It is handsomely illustrated, printed upon extra heavy paper, and forms a very attractive book.

MODERN MEDICINE. By Julius Salinger and Frederick Kalteyer. Price, $4.00. Philadelphia and London: W. B. Saunders & Co. 1900.

THE PRACTICE OF MEDICINE. A Text-book for Practitioners and Students, with Special Reference to Diagnosis and Treatment. By James Tyson, M.D. Second Edition, Thoroughly Revised and in Part Rewritten. Price, $5.50. Philadelphia: P. Blakiston's Son & Co. 1900.

A TEXT-BOOK OF THE PRACTICE OF MEDICINE. By James M. Anders, M.D., Ph.D., LL.D. Fourth Edition, Thoroughly Revised. Price, $5.50. Philadelphia and London: W. B. Saunders & Co. 1900.

Compared with the average work on practice, the book of Salinger and Kalteyer must be regarded as a small volume. Still it has 801 pages, and an examination of its contents shows that the entire field of internal medicine has been well covered. The authors have departed from the usual method of separating to some extent physical diagnosis from the description of special diseases; and devote the first 170 pages of the volume to a general discussion of symptoms, bacteriology, laboratory methods, and physical signs. This necessarily curtails the part devoted to special pathology to about 500 pages,

which, in the present extent of this subject, admits of but very brief treatment. Many of the important diseases are thus limited to a statement a sentence in length, under the various subheads of prognosis, diagnosis, and treatment. A convenience in reference is the printing of the subheadings in extra heavy type. Notwithstanding its limitation of space, it is surprising how much the authors have succeeded in compressing into a comparatively small volume, and this without using small type or unduly cramping the page. There are some omissions, especially in the department of nervous diseases. On the whole, the work forms an excellent text-book for the undergraduate, but it is too brief to be satisfactory to the practitioner.

The second edition of Tyson is a splendid addition to the literature of clinical medicine. It forms a large volume of 1222 pages, and easily ranks as one of the leading works upon practice. In the space at our disposal it is impossible for us to give more than a brief reference to the work. Dr. Tyson brings to its preparation a vast experience in clinical medicine, and he has produced a work which for reference and study is second to none that has been published in this country. In his preface he says that it is not based solely upon his personal practice, but we have not seen an extensive work upon this subject in which the personal experience of the author seems to play a greater part. The usual arrangement is followed, the work being divided into fifteen sections. Naturally, the longest and most important is that dealing with infectious diseases, though the following section upon diseases of the digestive system is nearly as long, and it could readily pass for a monograph upon this subject. Under the diseases of the suprarenal gland, the writer describes but one, namely, Addison's disease. He makes no mention of a possible disease of the suprarenal capsule without bronzing of the skin. The chapters on constitutional diseases are especially full.

The numerous editions that have been called for of Anders's work in the last few years have led to a rather extensive review and a general commendation of it in these pages. Hence we shall not attempt a critical description of the contents of this last or fourth edition. The same general arrangement has been followed in its preparation, and there is the same fulness of detail.

A TEXT-BOOK OF PHARMACOLOGY AND THERAPEUTICS. By Arthur R. Cushny, A.M., M.D. Second Edition, Revised and Enlarged. Philadelphia and New York: Lea Brothers & Co. 1901.

Within a year a second edition of Dr. Cushny's work has been called for. The first edition was favorably noticed in these pages, an opinion which we reiterate regarding the present volume. The author aims at presenting the reasons for drug action and a rational discussion of therapeutics. Especial effort is made to connect the effect of drugs in disease with those which have been observed upon animals in health. The work is prepared from the standpoint of the experimental therapeutist, and where the latter fails to offer an explanation, none is given.

The work begins with a brief introduction in which pharmacology is defined as "the study of the changes induced in living organisms by the administration in a state of minute division of such unorganized substances as do not act merely as foods." This definition seems to meet the requirements nearly as well as any that could be offered. After this is a discussion of stimulation,

depression, and irritation in relation to drug action. This is about the only reference that we see to the materia medica and therapeutics of thirty years ago. Among the more recent ideas regarding the effects of drugs are those of elective affinity and protoplasmic poisons and the relation between chemical composition and pharmacological action. The hypodermic method is commended, and the statement is made that it is used more widely every year.

In the matter of classification the writer goes to the extent of practically discarding it, unless the six parts into which the book is divided can be considered such. Part I is devoted to the organic substances which are characterized chiefly by their local action, while Part II deals with organic substances characterized chiefly by their action after absorption. Part III deals with the combination of the alkalies, alkaline earths, acids, and allied bodies; Part IV, the heavy metals; Part V, ferments, secretions, and toxalbumins; and Part VI, menstrua and mechanical remedies. The first three divisions take up nearly two-thirds of the book. Naturally the organic substances characterized chiefly by their action after absorption include the bulk of the active remedies of the Pharmacopœia, so that one can hardly dignify such divisions as a classification. At the same time it affords some facility in consulting the work, as allied substances are brought in relation.

In the discussion of those substances having a local action, the number has been considerably curtailed, and the writer thinks it might be still further reduced without loss. It includes the skin irritants, vegetable purgatives, astringents, and anthelmintics.

The discussion of the effect of alcohol includes its action upon the nerve centers, respiration, and circulation. The writer is inclined to admit that there may be a slight stimulating effect from small quantities, but this very soon passes; and that it is generally agreed that the capacity for work, both physical and mental, is lessened by its use. As to the value of alcohol as a substitute for foods and carbohydrates, this is a question that must be left open to further research. Alcohol tends to prevent the waste of the foods and carbohydrates of the body, but it is of less value in economizing the nitrogenous wastes. If alcohol is to be used as a food it must be associated with a diet rich in proteids, and under this condition it can replace to some extent the ordinary foodstuffs.

There is an exhaustive discussion of ether and chloroform and their comparative effects. The author attaches little importance to the conclusions of the Hyderabad Commission, stating that it really makes little difference whether after respiration ceases there are a few beats of the heart, but that both ether and chloroform act as direct toxic agents, both upon the circulation and respiration, chloroform being the more dangerous of the two and causing the most deaths. Fatalities may occur at any stage of the anesthesia. The effects upon the heart vary very much with the concentration of vapor; if very dilute, the respiration fails before the heart, and if stronger, the respiratory movements stop after the heart ceases to beat.

The want of space forbids a more extended discussion of the work. It is a careful and painstaking production, well issued by the publishers. The author exercises a wise discrimination in not being too quick to recognize additions to the materia medica, but we think he rather lags when he fails to mention the serums, cacodylate of sodium, nuclein, spermin, and other substances, which would be worthy of, if not extended description, at least a paragraph.

LEADING ARTICLES.

HEMIPLEGIA.[1]

Hemiplegia is not a disease; it is only a symptom. It generally indicates a destructive lesion of the motor centers or motor tracts of one side of the body. Anything that causes a lesion of this kind will result in paralysis of voluntary movement on one side of the body.

The causes of hemiplegia are numerous. The motor center can be destroyed by traumatism or by the encroachment of a tumor. The most frequent are those destructive lesions characterized by hemorrhage and thrombosis. Often hemiplegia is ushered in with a sudden loss of consciousness, and before this has passed away it is usually possible to detect that the patient has hemiplegia because of the flaccidity of one side of the body; if the arm or the leg is lifted, it will fall heavily unless supported, while on the sound side there may be appreciable resistance. In the early stages of hemiplegia there is always conjugate deviation of the eyes, which disappears. A patient lying unconscious, or semiconscious, and paralyzed on one side, looks, so to speak, toward the lesion; the patient with right hemiplegia has his eyes directed toward the left. The centers that move the eyes laterally are situated in the posterior part of the upper frontal convolutions. These centers, or their tracts, being damaged in one hemisphere, those on the other side, no longer antagonized, turn the eyes to the other side. This is only a temporary condition, lasting but a day or two. All movements that are centralized in both hemispheres give a comparatively fleeting paralysis.

The paralysis of the face in hemiplegia has certain features which distinguish it from facial paralysis due to a lesion of the facial nerve. All movements are centralized in the opposite cerebral hemisphere; hence the face is affected as well as the arm and leg by a unilateral cerebral lesion. The facial paralysis is distinguished from the peripheral variety in one feature, namely, the practical escape of the orbicularis palpebrarum. A patient who has paralysis of his face from cerebral lesion can shut his eye, but one who is paralyzed from a lesion of the facial nerve cannot do so. In hemiplegia, movements are affected in proportion to their innervation by one side.

[1] Condensed from a clinical lecture by David Ferrier, in the *Clinical Journal*, Feb. 20, 1901.

As a rule we shut both eyes. The movements are bilaterally organized, so that if one center is paralyzed the other is still capable of carrying out the movement on both sides. The hemiplegic patient cannot shut one eye as tightly as the other, and if you ask him to make a special effort to shut both eyes, the eyelids of the paralyzed side are not drawn in to the same extent, showing that there is a weakness of the orbicular muscle, but not complete paralysis. The paralysis of cerebral disease is shown most markedly at the angle of the mouth and the lower facial region.

The arm is at first quite paralyzed and flaccid, but when the patient has recovered from the first stage it will be noted that the paralysis is not complete, the limb not being affected equally in its movements. The paralysis is always in proportion to the degree of independence of the movements; those most independent of the opposite side are those most paralyzed. Therefore, the incapacity of the distal parts is more pronounced than of the proximal—the fingers, wrist, and hand being more paralyzed than the elbow and shoulder. A patient recovering from hemiplegia is able to move his shoulder and elbow, and yet do nothing with his hand. The movements most paralyzed are the extensors of the fingers, and they are also the last to recover.

In the lower limb, the foot is more paralyzed than the leg, and the leg more than the thigh. The last part of the lower limb to recover is the foot, and the last movement to be regained is that of dorsal flexion. It is a good plan to make a patient stand with his feet against a wall and ask him to dorsally flex the foot; if he can do this, he can do everything else with his limb. This is a valuable test of paralytic weakness of the knee, however slight in degree. In the majority of instances where a destructive lesion has occurred recovery is never complete. In consequence of the destructive lesion there occurs a descending sclerosis in the pyramidal tract crossing at the decussation of the pyramids and down the opposite sides of the cord. With the occurrence of this pathological change there is an increase in what are called the deep reflexes, and ultimately the development of contracture, or what has been termed by Todd, late rigidity. This is a condition that invariably arises in paralysis from organic disease if the lesion is of such a character as to actually interrupt continuity of the pyramidal tract or destroy the motor centers from which it springs. It does not set in until two or three months after the stroke, and when it does occur it is incurable. Preceding the development of late rigidity, there is an increase in the reflexes. The knee-jerk on the paralyzed side is

increased, and so are the periosteal reflexes and tendon reflexes of the wrist, elbow, and shoulder; in the foot there is ankle clonus. When late rigidity sets in the contracture becomes gradually more firm and difficult to overcome, until from the long-continued functional rigidity there is shortening of the tendons and the limb becomes deformed, so that no amount of force will restore the natural position. Late rigidity gives a peculiar attitude to the limbs; the forearm is flexed, and the whole arm is adducted, the wrist is generally pronated, the thumb bent, and the fingers clenched over the palm. If you attempt to forcibly supinate the arm, the fingers are more tightly clenched; straightening the fingers increases the flexion at the wrist. If the contracture is overcome in one direction, it is greater in another. The foot tends to assume the position of equinovarus or equinus alone. There is rigidity of all the muscles, and an old hemiplegic in walking circumducts his leg and scrapes his toe on the ground—what is known as the typical hemiplegic gait.

An important sign of organic lesion is found in the character of the plantar reflexes. In the early stages of hemiplegia, while the paralysis is still flaccid, there may be no response from plantar stimulation. Normally, if the finger-nail be drawn along the sole of the foot, there is a tendency for all the toes to flex, but if there is a lesion of the pyramidal tract, such stimulation causes extension of the big toe, and occasionally of the others. On the sound side there is a flexor response, while on the paralyzed side there is extension. This is the most important distinction between functional and organic paralysis.

Hemiplegia may occur as a purely functional affection, but, as was pointed out by Todd, the face is rarely affected in hysterical hemiplegia. Occasionally there may be on the same or on the opposite side a spasm of all the muscles of expression in the lower part of the face. There are very few cases on record of actual paralysis of the face in hysterical hemiplegia. In organic hemiplegia, as a rule, the arm is more affected than the leg, following the rule that the parts that are most volitional are those most paralyzed in cerebral disease. In hysteria, on the contrary, it is the leg which is usually most affected. In cerebral paralysis the leg may be completely paralyzed, but the arm so far recovers that the patient can use a crutch to get about. Todd called attention to the peculiar character of the gait in hysterical hemiplegia, which has been verified by subsequent observers; the leg is not circumducted but dragged like an inanimate piece of matter. In organic cases there is always a good deal of move-

ment about the big joints. The pelvic and shoulder regions are bilaterally innervated in each hemisphere; hence, in organic disease there is always a certain amount of movement in these joints. These movements are often impaired by late rigidity and sometimes by changes in the joints. Many hemiplegics would have a much better range of movement if more care were taken to prevent the limbs becoming set. When the limb is inactive for a long time, arthritic changes are set up.

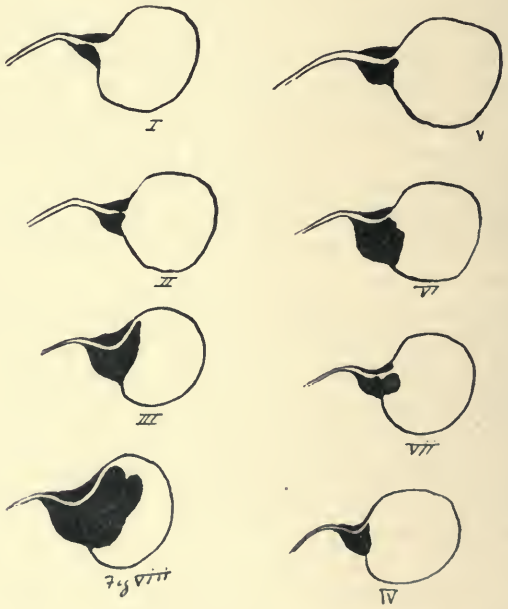
Hemiplegia generally occurs in adults, but it may occur in infancy and sometimes at birth. Infantile hemiplegia is most common in the first year or two. The child has a series of convulsions, and when it awakens the mother notices that it does not move one side of the body. This is the common history, and a hemiplegia of this kind is more or less permanent. There is, however, a greater degree of recovery than when the accident occurs to the adult brain. Where the hemiplegia continues throughout life there is defective development on the paralyzed side; the face is smaller on one side than on the other; the limbs are shorter as well as limited in their movements, with contracture. Hemiplegia may be entirely motor, but it is often associated with loss of sensation. In the internal capsule the motor and sensory tracts are closely related; therefore, with an extensive lesion we are apt to get a combination of hemiplegia and hemianesthesia. The loss of sensation may be only tactile, more particularly the sense of localization; it may extend to the loss of the sense of pain. When sensation is affected it has the same distribution as the motor paralysis. It is most marked in the parts which are most volitional. Frequently, with hemianesthesia, there is associated hemianopsia. This is a significant indication of organic disease. In hysterical hemiplegia there is often associated hemianesthesia, but the eye symptoms in these cases are crossed amblyopia, with blunting of hearing, smell, and taste. The hemianesthesia in hysterical patients usually involves touch, pain, and temperature, and the muscles may be excited with the strongest current without the patient feeling it. In organic disease the anesthesia is never so marked as this.

PROSTATIC HYPERTROPHY.[1]

This morbid condition is not limited to advancing years, though it is true that the majority of cases occur after 50. A man of 41 years had four ounces of residual urine with an obstruction consist-

[1] Condensed from an article by H. V. C. Hinder in the *Australasian Medical Gazette*, Jan. 25, 1901.

ing of a median nodule as large as a pea. Another had his prostatic trouble at 38. Thompson states that 34 per cent of men over 60 have enlarged prostates, while Belfield makes it 30 per cent. Marked symptoms in prostatic hypertrophy are found in only 15 per cent. The variable character of an enlargement is not sufficiently borne in mind. A common fallacy is that if the prostate is not felt to be enlarged by the rectum, it therefore causes no obstruction to the flow of urine. He has noted a blockage sufficient to give two ounces of residual urine with a prostate that by the rectum showed scarcely any increase in size. The reverse is also true: the prostate may be enormously enlarged upon rectal examination, and yet there be no symptoms of obstruction. Everything depends upon the relation of the enlargement. A small nodule may cause more trouble than a prostate that is so enlarged intravesically as to increase the length of the prostatic urethra by two inches. Examination of shrunken museum specimens gives very little idea of the relation of these enlargements in the living body.



The character of the enlargement varies considerably; in most cases the glandular element predominates, but the fibrous and muscular elements may be so increased that induced atrophy of a large prostate is often not followed by a satisfactory reduction in size. In

85 to 90 per cent of the cases the enlargement affects the middle lobe. This is always associated with a general increase in the size of the organ, but in varying degrees. There is frequently an anterior knob-like prominence, as well as a posterior, or the two may coalesce to give a collar-like arrangement.

The general enlargement of the gland is often found with bosses on the surface, and particularly at the meatus. In this manner a large mass is formed which must be removed before micturition can be restored. Fig. 3 shows how the prostatic urethra becomes prolonged in an upward fashion, so that the meatus is found at times quite two and a half or three inches away from the normal situation. Unless this lengthening of the urethra is understood, it may give rise to an error in diagnosis and substitution of a metal for a rubber catheter, with the consequent tunneling of the prostate and the formation of a false passage. In Fig. 8 by far the largest prostate that Hinder has ever seen is pictured. The summit of the mass was situated three-fourths of an inch from the anterior abdominal wall when the bladder was distended. In such case very little urine can be removed by the catheter, unless the patient stoops forward and, as it were, empties the urine into the upper part of the viscus, in which the catheter projects. In one case the patient introduced into the rectum a rounded piece of wood for the purpose of lifting up the bladder so as to aid in the discharge of the urine.

As the bladder becomes distended and the walls tense, it tends to relieve the obstruction by putting the prostatic opening upon the stretch, so that in estimating the size of the prostate it can only be done after the bladder is emptied. One of the gravest complications, aside from the obstruction, is the congestion caused by wet feet, indiscretions in diet, chill, or the jarring of a long railway journey. The efforts to empty the bladder also frequently increase the congestion and still further lessen the possibility of getting rid of the urine.

The effect of enlargement of the prostate on the sexual organs is marked, and impotence is a common result. Whenever the bladder is unable to completely rid itself of its contents, great changes take place. The resisting power of the epithelial lining is diminished, there is hypertrophy, and sometimes marked distention. In time this muscular organ tends to become a mere inert urinary receptacle, and yet it has great recuperative power; Hinder has known of but one case in which the bladder was incapable of recovery. He believes that these cases will remain aseptic indefinitely unless a catheter is employed, but eventually the retention becomes so

marked that relief is absolutely necessary. A cystitis once set up leads to a suppurative nephritis, and these patients are passed along to the surgeon after the probability of relief is past. If these cases reached the hands of the surgeon when residual urine first became manifest, the results would be much more satisfactory. Too much confidence cannot be placed in the stories of an occasional individual who has done very well by simply carrying a catheter in his hat and lubricating it with saliva when he wished to use it. The poor wretches who have died of secondary sepsis are quite forgotten, though their number is by no means small. Few men are content to put up with a catheter for the rest of their lives, and the use of the catheter frequently initiates a septic inflammation which early terminates the case.

Medicinal treatment is of little value in prostatic hypertrophy. Strychnine and ergot are of some service in increasing the expulsive power of the bladder. Boric acid, in doses of ten grains, is sometimes of great benefit, but it should not be continued over more than two weeks.

Orchectomy is by no means certain to be followed by improvement, and there are many reasons against urging it. Vasectomy is still undergoing trial, but the writer regards it as always of some service. Improvement usually begins within one week or even twelve hours after operation, and may go on for several weeks or months. It is most suitable in early cases of slight enlargement when the amount of residual urine is small, and also in cases where there is a great general enlargement of the gland, and where, as far as can be ascertained, the structure is largely adenoid. Vasectomy is most disappointing in cases where the cystoscope or sound shows a pedunculated, knob-like form of obstruction. In these cases the prostate felt per rectum may be very small. Vasectomy may often be combined with perineal cystotomy. Indiscriminate vasectomy, without a careful selection of cases, will surely lead to disappointing results. Perineal drainage for three or four weeks has not been followed by good results in Hinder's hands. Partial prostatectomy has a limited field, as it will not relieve pedunculated growths.

The operation which is the most radical is a suprapubic cystotomy and the removal of the obstructing portion of the prostate. The final step in the operation is a perineal cystotomy and the introduction of a metal tube. In old men a vasectomy may be performed a week or two before the operation. In one of his worst cases, a man of 52, who for two and a half years had been entirely dependent upon the catheter, made a splendid recovery without vasectomy.

In estimating the size of the growth the examination per rectum, while of some value, is very deceptive. In these cases the use of a beak catheter will often give a quite perfect idea of the size of the growth. It is introduced, and then rotated, using catheters of different lengths of beak, and in this way a fair idea of the size of the enlargement can be made out. Examination with the cystoscope is of value, especially in those cases where other methods are of least use. In very early cases the straight cystoscope may be employed.

The dangers of prostatectomy are hemorrhage, sepsis, and the urethral troubles following the operation. Chloroform is the best anesthetic. In opening the bladder suprapubically, no rectal bag is used, but the bladder is distended with eight or ten ounces of water. The suprapubic wound is made with as little tearing as possible and with clean cuts. The bladder is held to the anterior abdominal wall by a catgut suture placed in the superior angle of the wound. Using the fourth finger as a guide, one blade of the prostatectomy forceps is thrust into the prostatic urethra as far as possible, then by forcibly closing the lower blade sweeps upward and leaves a broad track ascending to the internal meatus. If this is not sufficient, lateral cuts are made either with the same forceps or with a serrated scissors. It is essential that these tools be blunt. When the hemorrhage has ceased a perineal cystotomy is performed and a metal tube inserted. The bladder is then filled with gauze introduced through the suprapubic opening. Every care should be taken to conduct these operations in an aseptic manner, as even in cases of infection the introduction of a new germ may overcome the resistance of the tissues and lead to a fatal result.

EDITORIAL COMMENT.

THE OLEOMARGARINE BILL AND SUBSTITUTION.

In this country too little attention is paid to the subject of food adulteration. We have frequently spoken of it in these pages and propose to continue the discussion, as we believe that it is one of the most important of public health questions, and one that intimately concerns the care of the sick. The importance of pure food in the nourishing of those whose nutrition is below par cannot be overestimated, and for that reason those whose duty it is to serve the public health are quite as much interested in the prevention of adulteration and substitution as are the dairy interests. The latter now have in charge a bill which they are attempting to put through Congress, which renders oleomargarine, if colored to resemble butter, subject to a tax of ten cents per pound. The purpose of this bill is not for revenue, though it is classified among the acts which raise money for the maintenance of government. Its main purpose is to prevent the substitution of oleomargarine for butter. Some years ago Congress passed a law which imposed an internal revenue tax upon oleomargarine, and required that every package should be labeled and stamped. This was found to be of little effect in preventing substitution, as those who purchased this substitute for butter, in original packages, served it on the tables of restaurants and hotels with impunity as pure butter.

The argument is advanced that oleomargarine is an excellent food and a good substitute for butter. We shall not attempt to argue this question, for even if we admit that oleomargarine is a wholesome and palatable food, there is still no reason why it should be sold as butter. If wholesome and nutritious, it can easily rest upon its own merits as a food, but there is no reason why it should masquerade as butter; those who want the latter article should have it, and those who wish a substitute should be able to obtain it to a certainty. The public should not be asked to buy a mixture of lard, tallow, cottonseed oil, and one and one-half per cent of butter fat, as pure butter. We question that the food value of this mixture is equal to pure butter fat, and the substitution of one for the other is a fraud with which the medical profession has had abundant experience in the matter of drugs. The bill now before Congress aims simply to prevent the coloring of oleomargarine in imitation of but-

ter, and as such it is to be hoped that it will pass, as it will lessen in so much substitution and adulteration. Of course the bill is only partial in aiming at a single product, but sooner or later the different States, and if necessary the United States, so far as it relates to interstate commerce, will have to take up the question of the extensive adulteration of foods so that every original package will bear upon its label a truthful statement of the contents. Such a law is ultimately in the interest of manufacturers as well as consumers.

The recent experience of England in relation to beer is an exact case in point. There have been frequent references in the English press to the enormous decrease in the consumption of beer in England. This has been so marked that the revenue derived from the tax on beer has materially fallen, and the brewing industries have been far from prosperous. A few years ago English beer was brewed exclusively from malt and hops. An act was passed in Parliament permitting brewers to use practically anything, and very soon rice, glucose, and other substances were substituted for the malt. The recent wholesale poisoning by arsenical beers in England is a direct outgrowth of the use of glucose, due to a contamination of the sulphuric acid with arsenic, with which the starch is digested in the manufacture of glucose. Perhaps there is no objection to the preparation of beer with rice, or even with the pure glucose, but if so their use should be stated. Beer, as commonly understood, is made from hops and malt, and if made from anything else the label on the bottle should show it.

For years this country has derived an enormous revenue from the tax upon spirits and beer, and it is an outrage upon the community that the government stamp does not stand as an absolute guarantee of the purity of the contents of the package.

THE EARLY DIAGNOSIS OF CANCER.

The great increase which is reported in the mortality from cancer calls attention to the necessity of early diagnosis in this disease. At the present time the only hope in a case of cancer is in operative procedures. A study of the statistics shows an appalling mortality. An analysis of the fatal cases shows that the two most important elements in controlling this mortality are early diagnosis and the age of the patient. In patients beyond 60 years of age, recurrence is delayed, so that relatively the postoperative prognosis is better the older the patient. The next most important factor is early operation, and naturally this turns upon early diagnosis. The favorite

seats of cancer are in the female breast, the uterus, and the stomach. The comparatively slight mortality in vaginal hysterectomies, and the wonderfully perfected technique in operations for removal of the breast, should lead to early and more radical procedures in both of these groups of cases.

In cancer of the breast, where all the characteristic signs of malignancy are present, there can be no question as to what should be done; but it is in the doubtful cases that mistakes are oftenest made. Sometimes a breast is removed for a circumscribed inflammation of the milk duct, but errors upon this side are comparatively infrequent. It is much more common to have a tumor which is of doubtful malignancy allowed to remain until there is extensive involvement of tissues and lymphatics, after which surgical measures are only palliative. In any doubtful tumor of the breast, it is far better to give the benefit of the doubt to operation, for in that case comparatively little harm will be done, particularly if care in the method of exploration is used in every case. In a tumor of the breast in which the diagnosis is obscure, the patient should be put to sleep and prepared for the radical operation. Then the tumor should be incised and a careful exploration made, and if the signs of malignancy are present, a radical operation should be performed. If this rule regarding exploration were followed in every case, it would result in the occasional saving of a breast which would otherwise be removed for malignant disease. Sometimes a deep-seated, quiescent abscess, with dense walls, may give all the physical signs of malignant disease of the breast, including the enlargement of the axillary glands. In such case a simple exploration reveals the character of the trouble and prevents the radical operation.

In cancer of the uterus everything depends upon the promptness of diagnosis. Here the difficulties are much greater than they are in cancer of the breast, as the organ is not as accessible to external manipulation as is the breast; hence the rule should be to operate early in suspicious cases. It is better that an occasional organ should be removed for chronic senile endometritis than that a considerable number of women should miss the chances offered by early operation in cases of malignant disease.

In cancer of the stomach we cannot assure patients of the same degree of success that has been reached in cancer of the breast and of the uterus; still we believe that here surgery has much to offer in cases in which early operation is undertaken. In doubtful cases a simple exploratory incision, which need never be more than two

inches in length, usually clears up the diagnosis, and in cases which are operable this may be precedent to the removal of the offending structures.

The general treatment of cancer by surgical means, while not brilliant, so far as the prevention of recurrence is concerned, has been very successful in prolonging life and adding much to the comfort of the patient. The difference in the final outcome of cases of recurrence after vaginal hysterectomy for malignant disease, and those in which no operation is performed, is so marked that the operation is justified, even if recurrence is a certainty.

EXECUTIVE VALUE OF A MEDICAL TRAINING.

Physicians have shown such striking incapacity for accumulating money that it is small wonder that the lay public has come to regard them as having little capacity for public affairs. An examination of the facts shows that physicians as a class exhibit remarkable executive ability when placed in positions of responsibility. Compare the administration of hospitals and charitable institutions generally that are in the hands of physicians and those which are governed by laymen. There is scarcely a hospital in the country that is under political control which does not compare very unfavorably with the same institutions under the care of medical men. The vast public health service in the management of epidemics, quarantine, and other questions, presents problems requiring the highest administrative ability for their solution. We appeal confidently to the record of our profession in administrative positions. We believe that it will show a higher record of successes and fewer failures than that of any other class. The record of Gen. Leonard Wood in the government of Cuba is an instance strikingly in point. He has increased the efficiency of the public school system tenfold, has added thousands of miles of new road, has suppressed brigandage, has opened four great orphanages, and provided every city of any importance with a public hospital, and all this without increasing the public debt of an already overburdened community.

In this record of Dr. Wood we see the value of a medical training in an executive position. A well educated medical man must be well grounded in the sciences; he must not only understand the physical needs of the body, but the psychological states and the underlying sociological factors which exert such an important influence in the affairs of state. Hence there is peculiar propriety in placing a physician in an administrative position, and yet it is

singular how almost entirely ignored the talents of the profession are in this country. Even upon school boards it is difficult to find a physician, and we would think that the peculiar knowledge possessed by them would especially fit them for such positions. It is even exceptional to find them members of the board of trustees of public charitable institutions, though here a medical training would be of immense value. Such a neglect of the medical profession in public affairs is nowhere found, excepting in this country. In France, Italy, and Germany, a large number of physicians are found in the legislature and in many administrative positions. Some of the leading statesmen and politicians of the continent have had medical educations or have achieved signal distinction as medical teachers or practitioners. In this respect the profession in England is less prominent than that of the continent, but even in England the rôle played by the medical profession in the control of affairs is greater than in this country. One would think that a republic would be a place where all occupations would be represented in government; and yet it is a singular fact that almost the sole avenue to political preferment is through the legal profession. Nearly nine-tenths of our legislators and a large proportion of those who hold executive positions are drawn from the law, with the result that in the conduct of public affairs the commercial and other interests of the country are practically unrepresented. We believe that there are more lawyers engaged in governing in this country than in all the balance of the world beside, so that it has literally become a government of lawyers, by lawyers, and for lawyers. In France and Germany just the opposite conditions prevail. The sentiment of these countries is to the effect that a legal education does not especially fit one as a legislator.

THE LIMITATION OF LABORATORY METHODS.

We have frequently referred to the insufficiency of laboratory methods apart from clinical histories, as a guide in the practice of medicine. We have not, in these remarks, intended to detract from the value of laboratory study of disease, but have merely emphasized the fact that laboratory research should fall into its proper place as an aid in studying disease, and that where it displaced well known clinical signs it very frequently led to error. These views have found very strong support in a recent paper in the *Chicago Medical Recorder* for February, 1901, by W. K. Jaques. He starts out with the primary proposition that disease is a resultant of many fac-

tors, and that many times a germ is only the last influence to start a disease process. The germs of pneumonia or diphtheria may be present in the mouth of an individual for an indefinite length of time until some intercurrent condition sets up a train of phenomena by which the pathogenic properties of these germs become active. It is only when this relationship is recognized that the limitations of microscopic and clinical evidence in diagnosis can be understood. He called attention to the limitations of the microscope in the diagnosis of pulmonary tuberculosis. Often there are conditions of the tuberculous foci which do not admit of the bacillus being raised in bronchial secretions. In these cases it will not be detected. Hence, no reliance can be placed upon the mere absence of the tubercle bacillus from the sputum.

In identifying the Loeffler bacillus, all that the bacteriologist can do is to state that a germ identical in morphology with this bacillus has been found, but it must not be forgotten that other germs resemble it so closely that it is sometimes impossible to distinguish them from the other forms. The Loeffler bacillus may have all grades of virulence. Again, the site of the infection may not be reached, or antiseptic gargles may have been used, and in this way the culture media become contaminated. To properly appreciate the value of microscopical evidence, a physician should be familiar with those conditions which promote accuracy and success. While the use of the microscope is very valuable, it is important to remember that there are circumstances which render its findings almost negative, and the patient's life will depend upon an appreciation of the clinical symptoms.

In closing, Dr. Jaques says: "Some of the older physicians, not having had a bacteriological training, undervalue microscopical evidence, while the younger men place the greatest confidence in the microscope and laboratory methods. The aim of the physician should be to attain such a comprehensive knowledge as to be able to give each kind of evidence its proper value. Influenced by the teaching in the past that the germ was the all-sufficient cause of disease, the bacteriologists have claimed too much; to them, the germ was the disease. Now that they have had to recede from this position, the doctor who does not use the microscope believes that all evidence of this kind is weakened. Microscopical evidence is of more value now than ever before, if the physician has the knowledge to appreciate it. The fact that we have a pseudotyphoid, pseudodiphtheria, and possibly a pseudotubercular bacillus, which causes the bacteriologist to hesitate, only emphasizes

the necessity of the physician being a closer student of the problem of environment—environment of the germ which causes virulence, and environment of the individual which causes susceptibility."

CYTODIAGNOSIS.

Widal, who has already given us the agglutination test in typhoid fever, has made a further and what is seemingly a brilliant contribution to our means of diagnosis in what he terms cytodiagnosis. It consists essentially in the examination of the cellular constituents of any exudate or transudate. In a pleurisy, for example, a certain amount of the fluid is withdrawn, defibrinated, and then centrifugalized, and its cellular elements studied with the aid of differential stains. In simple pleurisy this sediment is composed of small lymphocytes and sometimes of a large number of red blood cells. In tuberculous pleurisy the cells which are found are distinctly different. Lymphocytes are very few in number, but deformed polynuclear leucocytes are abundant. In mechanical hydrothorax the cellular elements consist of the large endothelial cells, often adhering together, which have been mechanically stripped from the pleural walls. In pneumococcus pleurisy, polynuclear leucocytes are found having marked phagocytic powers.

The studies of Widal in relation to effusion into other cavities have not been as extensive as in those relating to pleurisy, but certain analogies were found. The studies of the articular exudates in rheumatism showed a great increase in the polynuclear leucocytes, though no germ was found in the fluid. The cellular elements indicated a reaction to some infectious agent. On the contrary, in traumatic arthritis as well as in hydrocele, the cell bore a close resemblance to that of traumatic pleurisy.

ABSTRACTS.

MEDICINE.

Combined Sclerosis in Pernicious Anemia.—

M. A. Brown, F. W. Langdon, and D. I. Wolfstein, in the *Journal of the American Medical Association* of March 2, 1901, describe a case of pernicious anemia in which there was combined sclerosis of the Lichtheim-Putnam-Dana type. The patient was 34

FIG. 1.—Upper cervical region. Degeneration in lateral and posterior tracts. Vacuolization of the white matter in the pyramidal tract.

years of age, and previous to his coming under observation had been sick about a year. He presented the peculiar brownish-yellow color often noted in pernicious anemia. Examination of the blood showed red blood-corpuscles 1,279,440, leucocytes 3600; an average of three tests for hemoglobin gave 32 per cent, with a color index of 1.3. There was marked polychromatophilia, and poikilocytosis was pronounced. The stained specimens showed numerous enucleated red corpuscles, the megaloblasts being greater in number than the normoblasts. For a time the patient gained under arsenical treatment, except for a weakness of the legs, which progressively increased. The knee-jerks were increased. The appetite was normal.

There was no syphilitic history. Although the legs were rigid, he could move all the joints voluntarily, but the weakness and spasticity prevented his walking. There was incoordination of the

FIG. 2.—Lower cervical. Degeneration in posterior and lateral tracts with marked vacuolization.

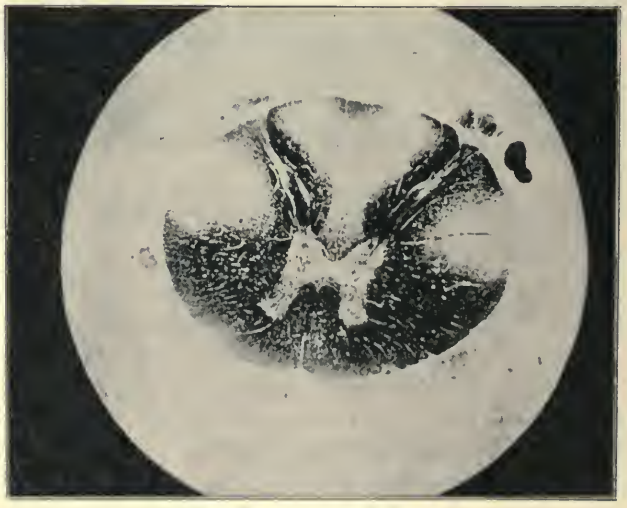


FIG. 3.—Upper dorsal. Degeneration in lateral and posterior tracts.

upper and lower extremities. There was some diminution of tactile sensibility and slight analgesia about the ankles. There was ankle clonus, and Babinski's sign was present on both sides.

The naked-eye appearances of the cord were normal. The crossed pyramidal and posterior root zones were of a dull grayish-pink color, in marked contrast to the surrounding areas. The

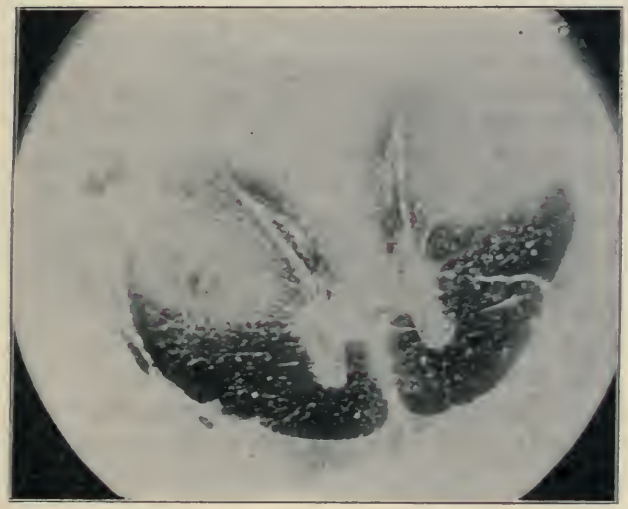


FIG. 4.—Mid-dorsal. Marked degeneration in lateral and posterior tracts.

FIG. 5.—Lumbar region. Degeneration in lateral and posterior tracts.

greatest degeneration was found in the parts named. The degeneration in the posterior portion of the cord commenced in the lumbar enlargement and could be traced as high as the pyramidal decussa-

tion. The tracts of Goll and Burdach were involved in part. The pyramidal tract was degenerated downward from a level as high as the olives. Here there was an area quite small occupying a position near the periphery of the medulla, dorsal to the olive and ventrally to the corpus restiforme. Above the level of the motor decussation the degeneration was well marked about midway between the nucleus cuneatus and the olive. The degeneration was well marked as low as the sacral region, the ending of the pyramidal tract degeneration being lower down than the beginning of the ascending degeneration. There were no positive signs of degeneration of Lissauer's zone. In the dorsal and cervical regions, the posterior nerve root boundaries were involved to a slight extent. There were no marked signs of vascular change. In some places the walls of the smaller vessels showed signs of hyaline degeneration, but there were no inflammatory changes. In both the posterior and pyramidal tracts there was a marked glia increase. In many places nerve fibers seemed to have fallen out, the pyramidal tract presenting that riddled appearance so commonly seen in advanced degeneration.

Early Diagnosis in Typhoid Perforation.—

William Osler, in *The Lancet* of February 9, 1901, voices an earnest appeal for early diagnosis in perforation. The general mortality from typhoid fever has been cut down to 7.5 per cent, largely due to hydrotherapy and the better management of the asthenic cases. About one-third of this mortality he attributes to perforation, and in this latter class of cases there has been practically no improvement. The only relief so far has been surgical, and everything depends upon an early diagnosis. The clinical picture of perforation in typhoid fever is due to the consecutive peritonitis. If this can be recognized and the patient handed over to the surgeon within twelve hours, before the inflammation has become extensive, there is a possibility of saving the patient's life. He especially urges the careful study of the abdominal symptoms, and specific instructions should be given to the nurse to notify the house physician of abdominal pain, of hiccough, of vomiting, of sudden rise in temperature, pulse, or respiration, of unusual sweating, or of signs of collapse.

"1. *The Pain.*—(*a*) Its onset, whether simply an aggravation of the slight abdominal pain such as is common with constipation or with diarrhea, or whether it is a sudden, intense pain which causes the patient to call out, and which, though relieved by stupes and

ordinary measures, recurs in paroxysms and grows worse. (*b*) Its locality, whether in the hypogastric or in the right iliac regions, or in the region of the gall-bladder; whether it is diffuse or localized; whether it radiates toward the pubes or to the penis. It is to be borne in mind that abdominal pain of a severe character in typhoid fever may be associated with an acute pleurisy, with a distended bladder, with a packed rectum, or it may follow an enema, or it may occur with acute cholecystitis.

"2. *The State of the Abdomen.*—(*a*) Whether flat, scaphoid, or distended, and whether, if distended, it is uniform or chiefly in the hypogastric region. (*b*) The respiratory movements, whether seen uniformly, and whether below and above the navel. It is to be borne in mind that perforation may be present with a flat, or even with a scaphoid, abdomen. (*c*) Palpation. Observe the degree of tension of the abdominal wall, the presence of pain on pressure, the locality of the pain, the extent, the degree of pressure necessary to elicit the pain, and whether it is a pain of increasing severity; the presence or absence of muscle rigidity or spasm, noting particularly its presence or absence in the hypogastric region and in the right iliac fossa. (*d*) Percussion. The character of the note in the front of the abdomen and in the flanks. Auscultatory percussion may be helpful when gas is free in the peritoneum. A flat note in the flanks may be present, due to exudate, within twenty hours of the occurrence of the perforation. (*e*) The liver flatness. Note specifically every third hour after the onset of the symptoms the extent in the middle, nipple, and midaxillary lines. Remember that obliteration may occur in a flat as well as in a distended abdomen. Complete obliteration in the nipple line may be caused by excessive tympany, but rapid obliteration in a flat or a not much distended abdomen is a valuable sign. (*f*) Auscultation. Note the presence or absence of the signs of peristalsis. A friction may be early, within twelve hours of the onset. (*g*) Examination of the rectum —whether there is tenderness or any fulness between the rectum and the bladder. (*h*) The stools—the character, frequency, and the presence of blood or sloughs. (*i*) The urine—whether pain on micturition, frequency, etc. The onset of symptoms with pain about the bladder or in the penis is not infrequent when perforation takes place in the coils of the ileum in close contact with the bladder.

"3. *General Condition of the Patient.*—(*a*) Facies—whether there has been a change in expression; the presence of a risus sardonicus, marked or slight; the onset of pallor or of sweating; and the signs

of collapse, as in cold hands, cold feet, and a slight dusky suffusion of the face. (*b*) The pulse—whether a sudden change in the rate and force; the very rapid, running, thready pulse may not be present for twenty-four hours after the onset of perforation. (*c*) The temperature—whether a sudden drop or a sudden rise. (*d*) Respiration—a sudden increase which is not infrequent; whether shallow and sighing. (*e*) Hiccough—sometimes a symptom of onset, more frequently late, when peritonitis is established. (*f*) Vomiting—whether with the onset of the pain; it is more frequently a late feature, associated with the presence of the diffuse peritonitis.

"4. *The Blood-count.*—The constant leukopenia in typhoid fever must be remembered. In a majority of instances, in cases well followed, there is a rise of the leucocytes, but this is not constant; they may be stationary. Also note the condition of the red blood-corpuscles and the hemoglobin. A decided drop may suggest hemorrhage."

Sudden pain increasing in intensity and recurring in paroxysms is the most constant symptom of perforation. In doubtful cases the patient should be given the benefit. Many desperate cases stand operation well.

The Plague in Glasgow.—

We have referred to the unseemly controversy which attended the recognition of plague in San Francisco—the dispute in the medical fraternity and that between the local health authorities and the governor of the State. On the one hand there were those who for commercial reasons insisted that it should not go out that San Francisco had the plague, and on the other those who upheld the view that clinical and pathological evidence should determine the matter, and that the best possible safeguard for the public interests was a knowledge of all the details. In marked contrast with the experience of San Francisco is that of Glasgow, and it again demonstrates the confidence the English people have in their splendid public health service. It also shows the pecuniary value to a country of an adequately remunerated and splendidly equipped public health service which is capable of dealing with epidemic diseases wherever they occur, thus avoiding the vexation of quarantine, with all its hindrances to commerce.

An account is given by R. Murray Leslie in the *Caledonian Medical Journal* for January, 1901, of the presence of the plague in Glasgow, which he terms a blessing in disguise. He is not a resident of Glasgow, but when the plague was reported in that

city he was seized with a strong desire to study the cases for himself. On reaching the fever hospital where the cases were being cared for, he was struck with the absence of all excitement in the neighborhood and the fact that plague was rarely referred to in conversation in the public places. This he attributes to the good common sense of the inhabitants, and partly to their confidence in the public health authorities. Ample opportunity for studying the cases in the plague wards was given, and special clinical demonstrations were given in the afternoon to the Glasgow medical men; and in the case of strangers from a distance the physicians in charge were always ready to demonstrate the cases and point out the microscopic and cultivation characters of the pathogenic bacillus.

In all there were twenty-seven cases, only eight of which could be called severe; of these five died. Seven cases were extremely mild, amounting to little more than febriculæ.

The exact origin of the Glasgow epidemic is still more or less of a mystery. The original cases of imported plague have not been traced, and the earliest known cases occurred amongst natives actually residing in the central districts of Glasgow quite away from the docks. There were several days during which the first patients were visited by promiscuous acquaintances. The infection is believed to have been propagated at a wake. The recognition of the disease is thought to have been due to the fact that the original cases occurred in the same house and at the same time, thus enabling Dr. Thomas Colvin to come to the valuable conclusion that they were all suffering from a common, highly infectious malady. He had them removed at once to the fever hospital. The discovery of buboes led to the provisional diagnosis of plague, which was subsequently confirmed by the discovery of the pathogenic bacilli and by successful inoculation results carried out by Professor Muir. The health officer promptly laid the whole matter before the health commission of the Glasgow corporation, and the prompt measures adopted were due to his direct initiation.

The plague cases were at once isolated in special wards of the fever hospital, and the medical and nursing staffs were inoculated with Yersin's antiplague serum, a supply of which was immediately obtained from the Pasteur Institute of Paris. Suspected cases to the number of 111 were maintained in reception houses. These were technically known as "suspects." Persons who had come in contact with the plague cases, known as "contacts," were carefully observed. Systematic house-to-house visitation of the infected area by experienced and specially appointed medical men was

instituted, their duty being to personally supervise the proper disinfection of the tainted houses and to prevent overcrowding and other unsanitary conditions. In addition, all sick persons on board the ships, especially Lascars and other foreigners, were kept under careful surveillance, and rat-catchers were appointed to inquire into any disease amongst these vermin. Not a single genuine case of rat plague was detected.

The success of Glasgow and Sydney in overcoming the plague shows what a thoroughly equipped public health service can do in this direction, and that with proper sanitary measures there need be little fear of an extended epidemic of plague. It also shows what dangerous proportions an epidemic might reach without such an efficient service. It will be found that like a conflagration it is easily controlled when confined to a few houses, but when once widely spread among the poorly housed and underfed people of crowded quarters in a large city, it may assume proportions very difficult to deal with.

Diagnostic Relations of Acetone in the Urine.—

Dr. Waldvogel, in the *Wiener Klinische Rundschau* of December 23, 1900, says acetone, diacetic acid, and oxybutyric acid are closely related substances which have been regarded as of comparatively little significance in the diagnosis of internal diseases. Shortly after acetone was discovered, an effort was made to associate this substance in the urine with other diseases. Von Jaksch believed that acetone was derived from albumin, and recognized three classes of cases in which this substance was excreted: the first included the continued fevers, a second the cases of diabetes, certain forms of carcinoma, cases of inanition, and psychoses with great excitement; a third included those cases in which the excretion was recorded as a disease *sui generis* brought about by the increased production of acetone in the organism, possibly due to an autointoxication. Of late, acetone has been regarded as a product of changes in food, an opinion held by Geelmuyden, Waldvogel, Schwarz, and Hagan-berg. The changes in food may occur in the intestines or in the tissues. In either case the result is an acetonuria. The different forms described by von Jaksch may possibly all be referred to simple inanition by which changes are brought about in the food.

Becker has studied the acetonuria which occurs after the administration of anesthetics, and comes to the conclusion that the degree of acetonuria is not related to the length of the narcosis. Women present a more marked reaction than men, and in children it is still

more marked. The acetone reaction commonly disappears in from eight to nine days. In certain cases, such as carcinoma of the stomach and diabetes, acetonuria was more marked. The quantity of the acetone varied from a milligramme to a centigramme. Acetonuria after narcosis is not a symptom of inanition, as it occurs in those patients who have eaten shortly before the administration of the anesthetic, and in whom, prior to the administration, no acetone was to be found in the urine. In these cases the acetonuria is an index of the changes in the tissues. The writer has tested the acetone in fifty cases of anesthesia, twenty-five of which were in children. The changes in the food of the body in narcosis may be sufficient to give diacetic acid in the urine, and even oxybutyric acid. The latter was not found in adults, but diacetic acid has been noted. The length of the narcosis and dose of the anesthetic have no influence upon the excretion of these substances.

Inanition always gives acetone in the urine, and for this reason it is useful in governing the diet in prisons and asylums. Acetonuria is also present in cases in which there is an excessive consumption of food. On the other hand, there are a few cases in which, notwithstanding the prolonged withdrawal of food, no acetone is excreted. Three colleagues of the writer fasted for three days; each presented the acetone, diacetic acid, and oxybutyric acid. A fourth, who fasted three days, gave only a slight trace of acetone on the second day and a very small quantity on the third day. This was due to the extraordinary oxidation energy which he possessed, by which all of the food was oxidized to CO_2 and H_2O. The absence of acetone is not proof that the nutrition of the patient is normal; a positive finding should direct attention to the diet. Sometimes acetone will be present in urine and will disappear when hydrocarbons are taken. The writer, when acetone was present in the urine, found that it disappeared by taking a small quantity of bread.

In diabetes the presence of these lower forms of oxidation is of considerable interest, but they are not inevitably fatal, as was shown by a case of Weinkrand, who has observed a diabetic in whom the sugar was replaced by acetone, diacetic acid, and oxybutyric acid for a long time, without any disturbance of the general health. It is true, therefore, that these lower products of oxidation are not serious, excepting where they accumulate in the blood in sufficient quantity to cause distinct symptoms, but they are always to be considered as evidence of decreased oxidation, and as such are to be prevented.

Knapp has found that in pregnancy, where the fetus is dead, acetone is found in the urine, and conversely, that when the fetus is alive acetone is absent from the urine. From a diagnostic standpoint this observation is of considerable interest and should be investigated further. Possibly the presence of these lower forms of oxidation may prove of considerable importance from a medicolegal standpoint, enabling us to identify death from hunger. It is evident that this can only be done in cases where the body is obtained in a comparatively recent state. If decomposition has taken place, the acetone will disappear from the urine.

A Case of Paroxysmal Hemoglobinuria.—

W. J. Lamson, in the *New York Medical Journal* of January 19, 1901, reports the case of a patient 40 years of age, a native of the United States. The family history was negative. The patient lived in South America as a child, but had none of the tropical diseases. Except for the mumps, he was perfectly well until 1882, when he contracted gonorrhea, and had a venereal sore, probably chancroidal; no specific treatment and no secondary symptoms appeared. In November, 1892, after a drive of several miles on a cold day, he passed urine deeply colored with blood. The symptoms passed off in a few hours. These attacks occurred at intervals of a few weeks following exposure to cold. In December, 1895, he was emaciated and jaundiced. The attacks occurred every few days and finally assumed a tertian periodicity. As a result of tonic treatment he gained in weight, but the hemoglobinuria occurred as frequently as before. In 1896 he returned to his home in the West, where he remained until October, 1900. The attacks occurred frequently, sometimes every day. The chief predisposing factor seemed to be exposure to cold. A typical attack begins about 10 A.M., with a chilly feeling, often becoming a rigor; cold extremities and cyanosis of the ends of fingers and nose and ears; increase in jaundiced hue, and nausea. The urine passed is of a bright wine color and increased in amount. The chill lasts from one-half to three hours, and is succeeded by a feverish sensation. At times an urticarial eruption appears on the hands or on the right cheek. Normal urine is passed again in twenty minutes, often not for several hours, depending on how quickly he becomes thoroughly warm. Between the attacks he feels perfectly well, except for mild symptoms of anemia. He has been troubled with flatulent indigestion, which has yielded to treatment. Occasionally there is an eczematous eruption on the right leg. The pulse averages 86; the temperature

is normal. The abdominal and thoracic organs present no obvious changes. The urine is clear, light- or dark-colored, of acid reaction, specific gravity 1.020 to 1.030; no albumin, no sugar, no hemoglobin. Microscopically there are a few leucocytes and some pavement epithelia. The blood was examined frequently during and after attacks, but no plasmodia or unusual deposits of pigment were found. The hemoglobin is 80 per cent, the red cells 4,200,000, and no leucocytosis. During the attack the plasma contains hemoglobin in solution, and the red cells do not form rouleaux as readily as normally.

A table of the examination of the urine during two attacks is appended. The second of these shows that the color of the urine at 7 A.M. was yellow, clear, acid in reaction, contained no albumin or casts. After a short walk at 9.45 A.M., he complained of feeling chilly, the urine passed was red-brown, contained a chocolate-colored sediment, and many coarse granular casts. At 10.50 the same physical conditions were present, but with an increase of the albumin to 50 per cent. At 2 P.M. of the same day the color of the urine was again yellow, contained a slight quantity of albumin, an occasional hyaline or granular cast, and the patient felt well. Substantially the same record was obtained from the urine upon a previous day when the attack lasted longer, namely, beginning at 10.30 A.M. and ending at 10 P.M. During the height of the attack the urine was loaded with casts, contained a large quantity of albumin, and was alkaline in reaction. The coagulum produced by boiling, unlike the usual albuminous precipitate, was a brown, curdy mass which rose to the top of the fluid. The hemoglobin was proved by all the tests, including the spectroscope.

Unilateral Progressive Ascending Paralysis.—

W. G. Spiller, in the *Philadelphia Medical Journal* of February 9, 1901, refers to the case, reported by Mills, of unilateral ascending progressive paralysis, which is thought to be a new form of degenerative disease. A similar case has recently come under Spiller's observation, in which the symptoms began at 37 years of age. There was first noted a weakness in the left leg, which gradually increased. A year after the onset of the trouble the left arm became weaker. He had never had vertigo, headache, vomiting, convulsions, or diplopia. At the time he was seen the left leg was spastic, but not in the least ataxic. In walking, the foot was dragged along the ground so as to rapidly scrape away the sole of the shoe. The left knee-jerk was greatly increased, ankle clonus

and the Babinski reflex were very marked on the left side, but uncertain on the right. Sensation for pain, touch, and temperature was normal everywhere over the body. There was no marked decrease in the size of the leg. The electrical reactions were normal. The strength of the left arm was distinctly less than that of the right. The arm was held slightly at the elbow against the body, but no contractures existed in any muscles of the body. Speech was normal. The mouth could not be drawn up as well on the left side as on the right, and a slight flattening on the left side of the face was noted. There had never been rectal or vesical disturbance. Examination of the right eye showed clear media with normal fundus; there was atrophy of the left optic nerve. The reaction of the pupils was normal.

Attention is called to the striking superficial resemblance of these cases to ordinary hemiplegia, but there is nothing in the history in the way of an apoplectic stroke, nor is there any implication of the heart. Neuritis is excluded by the exaggeration of the reflexes and the unilateral character of the symptoms. The usual signs of disseminated sclerosis are absent. It would be an extraordinary grouping of sclerotic foci that would cause a gradual ascending spastic paresis of one side, most pronounced in the lower limb, less so in the upper, and still less in the face. Hysteria is scarcely to be considered, because of the absence of the stigmata, the presence of the Babinski reflex and the optic atrophy.

Sleeplessness in Heart Disease and its Treatment.—

C. C. Gibbes, in the *Clinical Journal* of January 16, 1901, says that sleeplessness is always a serious symptom in heart disease. Hypnotics should be used either to break the habit of sleeplessness, or to give rest when it is urgently needed. The unregulated self-administration of hypnotics by the laity cannot be too severely condemned. In some cases better results are reached by giving three or four small doses during the day than from a single large dose at night. This especially applies to opium, chloretone, and bromide. Opium and morphine are among the most reliable sleep producers, and when pain is present are invaluable. They can be safely given in any uncomplicated form of heart disease. Lung and kidney cases do not necessarily interdict their use. If pain is severe and immediate results are wished for, morphine should be given hypodermically.

Chloral hydrate should only be given when the arterial tension is high, and its depressant action on the heart is beneficial, as is

sometimes the case in acute alcoholism. Chloralamid acts in the same manner as chloral, but is less depressant. Trional is useful and acts speedily. It has no special action on the circulation or respiration, and can consequently be given in any form of heart disease, but Gibbes has not found it satisfactory when pain is present.

Chloretone is one of the most recent additions to our list of hypnotics, and is very useful in heart disease. It has no depressant action on the circulation, can safely be given when kidney or lung complications are present, and is quick in its action. Its special usefulness in heart disease is due to the fact that it is not only a perfectly safe hypnotic, but a powerful germicide and anesthetic as well, relieving dyspnea by its local anesthetic effect and arresting fermentation. It is a perfectly safe hypnotic, a case having been recorded in which 120 grains was given in twenty-four hours without serious result. As a hypnotic, the writer generally gives fifteen grains at bedtime, repeating the dose, if required, in two hours. One and a half to two grains three times a day, with a fifteen-grain dose at night, is a very efficient method of administration, and often produces sleep the second night without an additional dose.

Two Cases of Amblyopia Following the Use of Jamaica Ginger.—

John Dunne, in the *Virginia Medical Semi-Monthly*, January 25, 1901, reports the case of a man 19 years of age who took two bottles of Jamaica ginger and some essence of lemon. This was followed by some confusion of vision, and later complete blindness. For some weeks there was improvement in the vision, and later it came to a standstill. Examination showed the pupils to be dilated, but with response to both light and accommodation. Vision in the right eye was 16–100, and in the left eye 16–30. The color sense was not impaired. There was concentric contraction of the visual field. There was marked atrophy in the right eye, less in the left, and the arteries showed considerable contraction. A slight refractive error was corrected, but without improvement in the vision.

A second case was that of a man aged 39 years, who had been a hard drinker for years. He drank four bottles of Jamaica ginger and some paregoric. This was followed by vomiting, impairment of vision, and later complete blindness. At the end of four days there was some improvement in the vision. After this attack the pupils were abnormally dilated, but responded to both light and accommodation. Vision in both eyes was 8–200, with color sense much impaired. In no part of the field could he discriminate

between the colors of small objects. In the tests with worsteds there was marked loss of the color perception. The visual fields presented no diminution for white. The arteries and veins were markedly contracted.

In commenting on these two cases, the writer regards them as cases of retrobulbar neuritis, though he admits that those so far reported that have come under observation have all been too late to determine what the primary changes were. He is inclined to attribute some of the toxic effects to the Jamaica ginger, as similar attacks have not been noted in the pure alcoholic cases. The writer has evidently not had his attention called to the fact that almost all the "essence of ginger" on the market is in reality but an alcoholic solution of capsicum.

SURGERY.

Closing Cutaneous Wounds Without Suture.—

Now and then we hear echoes of the earlier time in surgery when wounds of the skin were closed by plasters. That the ordinary interrupted cutaneous suture is not satisfactory is generally admitted. The subcutaneous suture has a good deal to recommend it, but unfortunately it is difficult to apply and adds considerably to the time of operation, and there are situations in which it cannot be used. H. Lilienthal, in the *New York Medical Journal* of February 9, 1901, says that primary union is essential to a firm cicatrix. A plausible explanation of infection in exposed sutures is that the organisms are derived from the skin because of the impossibility of sterilizing its deeper layers. Catgut and other absorbable animal substances furnish a natural culture medium; they swell by imbibition and plug the suture openings, causing retention. To obviate some of these difficulties, about four years ago he began treating certain selected cases of wounds without cutaneous sutures. The deep layers were closed in the usual manner, but the wounds in the skin were merely closed with sterilized gutta-percha tissue and left until the healing process was well under way, when the edges were approximated with strips of india-rubber zinc plaster. The success attending this method led him to use the plaster in closing the skin incision at the time of operation. For nearly three years he has treated wounds in this manner, including the incision for abdominal section, nephropexy, amputation of the breast, etc. Messrs. Johnson & Johnson have prepared for him a zinc rubber plaster, absolutely aseptic, having been sterilized in a vacuum chamber by exposure to the fumes of formalin. Each container holds enough plaster, already

cut in strips, to close an ordinary wound six inches in length. It is sold under the trade name of "Sterilized Z O Strips."

Before the plaster is applied all hemorrhage should be checked and the skin dried thoroughly with alcohol or ether. The strips are then laid on while an assistant adjusts the edges of the wound. The method is not applicable where there is tension, but may be used where it is necessary to employ drainage. The strips should be removed on the fifth or sixth day by loosening both ends and drawing them toward the wound.

An Old Case of Lupus Vulgaris Treated by Tuberculin Injections and X-Rays.—

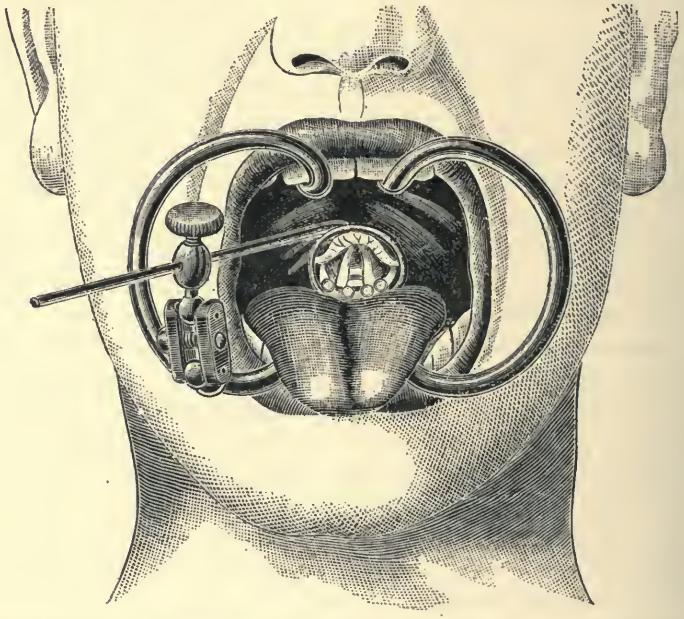
Reginald Bowman, in the *Australasian Medical Gazette* of January 25, 1901, describes the case of a man 62 years of age with a large lupoid ulcer at the left angle of the mouth, involving half the upper lip and three-quarters of the lower. Tubercular nodules could be felt extending upward into the apparently healthy cheek. The surface of the ulcer was nodular, suppurative hemorrhages were frequent, and exposure to the air caused severe pain.

Treatment was begun with tuberculin, thirty-six injections being given from March to June, 1900. Following these the ulcer looked healthier, the pain was relieved, and one large ulcerating nodule disappeared, leaving a healthy scar. Until the middle of May there were regular reactions from the tuberculin with a temperature ranging from 99° to 101°. In the last month of the treatment there were no reactions, though the dose was increased.

On June 19 the *x*-ray was employed, the face, with the exception of the site of the ulcer, being covered with a lead mask. In all, thirty-five sittings were employed. This resulted in all but one of the nodules healing, the scar on the mouth cicatrized, and was covered with an even, smooth epithelium. A large tubercular mass on the back of the neck softened, and is now about one-quarter its original size. Prior to the use of the tuberculin and the *x*-ray, repeated cutting and scraping, with the local application of the usual remedies, had resulted in no improvement. The writer is confident that the repeated tuberculin injections were important in limiting the spread of the infection. The reaction to the *x*-rays, the sittings varying from five to twenty-five minutes, was always very marked, there being a swelling of the ulcer and the formation of thick crusts. The repeated application of the rays had no injurious effect on the young ingrowing epithelium. On no occasion did a part covered with new skin exfoliate and become bare again.

Operations in the Larynx with Both Hands.—

Marc Paunz, in the *Wiener Klinische Rundschau* of January 20, 1901, says that a number of laryngologists have attempted to construct an instrument in which the mirror could be held, but thus far none of them have proven quite satisfactory. He has constructed one that bears a close resemblance to the one by v. Bruns. The instrument consists of an oval ring which is held in the mouth of the patient. On the left side is a ball and socket joint in which the



mirror is held by a screw, which permits of the mirror being moved in any direction. As a result of more than one hundred trials, the writer finds that an instrument constructed in this manner is easily retained by the patient. In some cases the patient is able to retain it at the first trial, but usually a certain amount of practice is necessary. In operations in which the epiglottis is horizontal, and in those upon the anterior surface of the larynx, it is possible to use two instruments at the same time, one in each hand.

Nocturnal Incontinence of Urine Cured by Operation.—

G. H. Noble, in the *American Gynecological and Obstetrical Journal* for February, 1901, describes the case of a girl 17 years of age who had always been subject to this condition. During the day there was a fair control of the bladder. Careful examination failed to disclose any physical defect of the urinary apparatus. The urine

was normal in every respect, and there was no rectal irritation nor constipation. Medical treatment failed entirely. A cystoscopic examination was made with the patient under an anesthetic, which revealed not the slightest trace of organic change in the bladder. An injection of sterile milk was used in search of a congenital fissure or fistula, but none was found. An inflamed and thickened hymen having very intimate connections with the meatus was thought to be a probable source of the trouble.

In operating, a circular incision was made around the meatus and the urethra dissected free from its attachment for half its length. This operation severed all nervous connection between the inflamed and thickened hymen and the urethra.

In the after-treatment the patient was awakened during the first night every two hours to void urine, the second night every three hours, the third night every four hours, and so on until she passed the entire night without evacuating the bladder. The progress was gratifying, and at no time since the operation has she expressed any discomfort from her former trouble.

Dislocation of the Median Nerve.—

A. de Page, in the *Annales de la Société Belge de Chirurgie* for January, 1901, reports the case of a girl who sustained a dislocation of the right elbow. Following this was impaired function of the right forearm, with some loss of sensation on the outer side of the arm. Three months later an examination showed that the size of the two forearms was about the same, with all the movements of the articulations intact. The muscles supplied by the median nerve presented a total extinction of the electrical reactions. On the palmar surface of the hand there was a loss of sensation over the thumb and of the index and middle fingers. There was a corresponding loss of sensation on the back of the hand. Feeling was normal in the forearm. An incision was made along the inner margin of the biceps muscle carried down in front of the elbow-joint. Dissection showed a mass of connective tissue, but no trace of the median nerve. This incision was closed, and the operation was followed by some sensation of the index and middle fingers, but this gradually disappeared. Later an incision was made from the posterior surface of the elbow-joint, which showed the median nerve incarcerated in connective tissue behind the condyle of the humerus. The nerve was freed and restored to its normal position, there following an immediate improvement in the sensation of the hand and some increase in ability to control the muscles supplied by the median.

The Tuning-fork as a Test for Disease of the Maxillary Antrum.—

D. A. Kuyk, in the *Laryngoscope* for February, 1901, calls attention to the unsatisfactory character of the physical signs in inflammation and the accumulation of fluid, whether purulent or otherwise, in the maxillary sinus. Transillumination sometimes gives a shadow when pus or other fluid is not present in this sinus. The length of time which a vibrating fork is heard when placed over the antrum, and the degree of loudness with which it is heard, are the determining factors in making the test. In one case in which the symptoms were obscure, transillumination gave a shadow on the left side and none on the right. The fork placed on the left side was heard louder and longer than on the right, from which it was deduced that the left antral wall was thicker than the right, thereby favoring sound transmission and practically eliminating antrum involvement on that side. The subsequent history of the case proved the correctness of this conclusion. In cases in which the antrum is filled with fluid there is a lessening of bone conduction, and consequently the fork is heard for a shorter time and the tone is diminished.

Continuous Catheterization in Some Genito-urinary Affections.—

H. M. Christian, in the *Therapeutic Gazette* of February 15, 1901, says that drainage of the bladder recommended by Guyon has received but scant recognition in this country. The most of our leading medical and surgical text-books have little reference to the method. The writer describes four cases of varying conditions in which this method was resorted to. Especially should it be used in cases of enlarged prostate, prior to the performance of any operation on the gland itself.

An important point in the technique is to carefully guard any portion of the catheter remaining in the bladder. The instrument is to be slowly introduced, and should be retained permanently at that point where urine begins to flow; this brings the opening in the catheter in the prostatic urethra. Any portion of the catheter remaining in the bladder is bound to provoke congestion, tenesmus, and add considerably to the patient's suffering and to the danger of infection.

A Mixture of Chloroform and Ether in Anesthesia.—

Edward Adams, in the *Medical News* of February 9, 1901, gives the results based on an analysis of 300 narcoses induced by the inhalation of ether 57 parts and chloroform 43 parts in what is

known as the "M.S." mixture. He claims among the advantages of this mixture that the stage of excitement and struggling is not marked, and that very little time is required to bring the patient under the influence of the anesthetic. The dose is comparatively small, about forty cubic centimeters being all that is required to maintain anesthesia for an hour. Such a mixture he maintains is safe, pleasant to take, and the after-effects are not marked, patients recovering quickly from the anesthesia. He says it can be used in nearly every condition in which chloroform or ether is employed.

THERAPEUTICS.

Chloretone as a Hypnotic.—

A. E. Stevens, in the *New York Medical Journal* of February 23, 1901, says that he employed this drug in fifty cases in which sleeplessness was an important symptom. His best results were obtained in those cases not associated with organic disease. In five cases of neurasthenia a single dose of twenty grains at bedtime generally produced refreshing sleep lasting from six to eight hours. In two of these cases the action of chloretone was especially noteworthy, as opium gave rise to excitement, and chloralamid and trional, while not followed by any untoward results, failed to give the desired effect. In chronic heart disease, where the symptoms were not severe, chloretone was useful. In the graver sort, morphine hypodermically is the remedy most suitable. In chronic nephritis it generally gave good results. In one case, that of a middle-aged man with uremic delirium, it was given every night for two weeks, and it rarely failed to give the patient sleep of at least three or four hours' duration. In several cases of pneumonia, with moderate fever, the results were not satisfactory. An hour's sleep would sometimes follow the exhibition of the drug, but often there would be no effect. In delirium tremens the drug was less efficacious than paraldehyde, bromides, or hyoscine. In one case, however, where the delirium developed while the patient was under treatment for compound fracture of the leg, chloretone acted well. Twenty-grain doses always exerted a quieting effect, and would generally induce sleep of from five to six hours' duration. On one occasion, a dose of twenty-five grains had little effect during the night of its administration, but the patient slept soundly all the next day and the following night. In phthisis the results were very favorable. In

typhoid fever the drug was generally unsatisfactory, but it was especially valuable in the convalescence from this disease. In one case of morphine addiction in which the daily dose did not exceed two grains, chloretone was employed with satisfactory results. In two other cases in which the habit was more pronounced the remedy proved useless.

In no case did chloretone give rise to untoward symptoms or to unpleasant after-effects. In a few instances it caused a feeling of drowsiness on the day following its administration. Nausea and vomiting never occurred. As a hypnotic its action is prompt, sleep usually following in from one-half to two hours after its administration. The drug seems to have little influence on the circulation. Even in cases of chronic heart disease there is no evidence of a depressant action. It often loses its power to produce sleep when used continuously, and in this respect it is inferior to opium, chloral, sulphonal, and paraldehyde. In insomnia due to pain it is of little value, and in insomnia due to extreme mental excitement it is inferior to hyoscine or paraldehyde. Repeated observations establish the fact that it seldom is successful in the presence of fever, at least when the temperature rises above 102° or 103°.

In conclusion the writer says that in chloretone we have a safe hypnotic of moderate power, which rarely gives rise to unpleasant effects, but of which a toleration is quite rapidly acquired; it is especially adapted for use in cases of insomnia unattended with pain, high fever, or pronounced nervous excitement.

Rapid Elimination of the Gonococcus.—

Follen Cabot, Jr., in the *Philadelphia Medical Journal* of January 26, 1901, gives his results in what might be called an abortive treatment of gonorrhea. That it shall be successfully employed it must be used within twenty-four to thirty-six hours of the beginning of the inflammation. If the gonococcus has had an opportunity to bury itself beneath the epithelium of the mucous membrane, nothing can be accomplished by the method. His results are based upon a study of thirty cases, almost all of which were cured in from eight to ten days. Janet's method of irrigating the entire urethra he regards as much too energetic in the early treatment of gonorrhea, and as especially liable to produce complications. Irrigating the front urethra by a double-current syringe is also inefficient, as the fluid flows out as soon as it enters, without coming in contact with the mucous membrane of the urethra. This is little better than the use of the old-fashioned hand syringe.

In the procedure recommended by him, Cabot first takes a specimen of the discharge for microscopic examination; then the patient passes urine, after which the urethra is washed out with hot water twice a day, and a ten-per-cent solution of argonin, freshly made, is introduced by an Ultzmann deep injection syringe, or better still, by a rubber bulb holding about six drachms. The solution is introduced hot, and is kept in the front urethra by pressing the lips of the meatus together as the point of the bulb is withdrawn. An applicator is then tightly wrapped with absorbent cotton and dipped in a ten-per-cent solution of argonin and introduced into the urethra as the argonin solution is allowed to flow out. The cotton swab is applied gently to all parts of the anterior urethra for two or three inches and then withdrawn. The operation is repeated, but the applicator is not used the second time if the patient complains of much pain.

The writer does not employ cocaine, as the treatment should be controlled by the sensation of the patient. The first two or three treatments will generally show how the case will progress. If all goes well, the disease, instead of progressing, remains stationary for two or three days, and then gradually subsides. In no case should the patient be allowed to employ the treatment. Internally citrate of potash should be given, and the habits and diet of the patient should be regulated. If the case progresses favorably, the strength of the solution of argonin may be carried up to 30 per cent. The examinations for the gonococcus are made every other day. In cases which progress satisfactorily, the gonococcus disappears on the sixth or seventh day, and the discharge on the eighth or tenth day. All cases in the writer's hands which progressed satisfactorily were permanent, none of them showing complications in the deep urethra.

Immediate Withdrawal of the Drug in a Cocaine Habitué.—

G. W. Norris, in the *Philadelphia Medical Journal* of February 9, 1901, reports the case of a dentist 30 years of age, who ten years before, for the relief of pain due to hemorrhoids, employed cocaine locally in the rectum. After cessation of the rectal trouble he continued to use the drug hypodermically, and when first seen at the hospital he was taking an average of sixteen grains per day. He stated that until within a week he had attended to his practice, doing as good work as at any time, but accomplishing less in the twenty-four hours and feeling a constant tendency to procrastinate. Time to him passed very rapidly — minutes seemed like

seconds; and he had an extraordinary appetite. When taking alcohol, to which he had at one time been addicted, he found it counteracted the effects of the cocaine. Insomnia was constant unless he took cocaine, after which he slept one or two hours, and then a repetition of the dose was necessary. A single large dose kept him awake. For several months he had been troubled with hallucinations of hearing, and while semiconscious of his true condition, had avoided street-cars and public gatherings, where he imagined voices accused him of being a cocaine fiend. At night he would wander from room to room in his efforts to escape the voices which he heard about him calling out, "Look! he's going to take another dose!" and while reasoning with himself on their subjective character, yet he was unable because of their vividness to flee from them.

On his admission the cocaine was abruptly withdrawn, strychnine sulphate in one-thirtieth-grain doses was administered every four hours, and sulphonal, two grains, repeated every two hours. On the first night the patient slept fairly well; on the second he required no hypnotic. He volunteered the information that he felt quite as well as he did before beginning the use of cocaine. He complained of no craving for the drug, and was allowed to leave the hospital a week after his admission.

The specially interesting features in the case are the sudden and complete withdrawal of the cocaine which produced such trifling disturbance, and that after twelve hours the patient experienced no craving for the drug, remained contentedly in bed reading the newspapers, and without experiencing any of the distress so common after the discontinuance of a long-established drug habit.

The Treatment of Acute Catarrhal Rhinitis (Coryza).—

C. P. Grayson, in the *Therapeutic Gazette* of February 15, 1901, says that in the acute stage, when there is swelling of the turbinates, the applications should be soothing. A few drops of a two-per-cent solution of cocaine may be first sprayed upon the mucous membrane. This is to be followed after a short time by Dobell's solution. After the mucous membrane has been thoroughly cleansed by the alkaline solution, it should be followed by a combination of the extract of the suprarenal gland with chloretone. This combination gives the vascular contracting effects of the suprarenal gland, with the local anesthetic and antiseptic action of the chloretone. Such a solution is safe to place in the hands of a patient for home use, as, unlike cocaine, it does not lead to the formation of a

habit. On the third or fourth day, when the secretion has assumed a mucopurulent character, a spray of distilled extract of hamamelis, one part to three of water, will prove mildly astringent. If this condition is followed by one of sluggish venous congestion, it may be necessary to give a local stimulant, such as the following:

℞ Tr. iodine comp..... 1 drachm.
Carbolic acid crystals..... 18 grains.
Glycerin..... 2½ ounces.
Water..... 2 ounces.

Mix. Place in water-bath at 100°, in tightly corked bottle, until colorless, and then filter.

This may be used in the form of a spray or by means of a cotton-tipped applicator. Under its action the relaxed erectile tissue of the turbinates rapidly regains its tone. The writer condemns oils in the treatment of catarrhal affections in the nose, except after the mucous membrane has been thoroughly cleansed by an alkaline wash. The oils themselves are not curative, but furnish a convenient vehicle for local remedies.

The Treatment of Influenza.—

W. H. Thompson, in the *New York Medical Journal* of January 26, 1901, in discussing the treatment of influenza, says that every patient should be instructed to go to bed and stay there until he recovers. A slight attack of influenza is no guarantee that the disease will remain mild, as serious and even fatal complications occur quite as often in the milder infections as in those which are apparently severe. Rest in bed is quite enough for most persons to get well without medicine, if they will only take the prescription faithfully.

The disease is much less severe than it was in 1890, which he attributes to the fact that there is an increased immunity among the people to the action of the influenza poison.

In his experience, a combination of codeine, phenacetine, and Dover's powder has proven to be far the most efficient in relieving the pain and promoting the comfort of the patient. He commonly combines these drugs with quinine, exhibiting them in pill form—one-sixth grain of solid aconite, one grain of Dover's powder, four grains of phenacetine, and three grains of quinine, made into two pills; three doses or six pills to be taken on the first day of the attack and continued daily, as long as the fever lasts. As soon as the temperature declines, whether on the second day or subsequently, the dose is reduced by one pill a day until only three pills are given.

Brush Massage.—

Frank R. Fry, in the *Journal of Nervous and Mental Diseases* for January, 1901, says that dry bristle brushes have proven very effective in carrying out massage, in some instances being superior to ordinary methods. It is simple, easy, and easily learned. As he employs the method, the brush is kept in contact with the skin and manipulated with a combined circumductory and creeping movement, and with a varying degree of rapidity and pressure. The dry brush adheres to the skin, drawing with it the superficial structures. The amplitude of the movements depends to a great extent on the length of the bristles and the spring of the brush. Specially constructed brushes are not necessary, as suitable ones can be easily selected from any good assortment of flesh brushes. Those with leather backs and well constructed are best. This method of massage is usually acceptable to patients. There is rapidly established a tolerance of the skin and muscles. A distinct advantage of the method is that there is no difficulty in obtaining operators. The procedure is effectual in the heaviest work for which massage is employed. It is an excellent means of relieving lithemic and neurasthenic pains of all descriptions.

Reduction of Chlorides in Bromide Medication.—

L. P. Clark, in the *Buffalo Medical Journal* for February, 1901, refers to the value of reduction of the chlorides where bromides are administered. Bromine is a fixed constituent of the tissues and is capable of replacing the chlorine to a considerable extent. When it replaces the chlorine, it is many months before it is eliminated from the body. It is believed that the amount of bromine so absorbed and fixed in the tissues is an efficient factor in lessening the instability of the nervous system and thus preventing epileptic seizures. It has been demonstrated that hydrochloric acid can be replaced by bromhydric acid in the gastric juice. To aid in carrying out the salt starvation where bromides are administered the author recommends the following diet:

Breakfast: Milk, one pint.

Luncheon: two cakes made of eggs, farina, milk, and sugar; coffee.

Dinner: unsalted bouillon, boiled beef (unsalted), and potatoes.

Supper: porridge made of farina and boiled milk.

On such a diet the writer claims that the amount of bromides can be lessened one-half.

Tolerance of Arsenic in Malarial Leukemia.—

Charles Heaton, in *The Lancet* of January 26, 1901, mentions a case of remarkable toleration of arsenic. The patient came under his care in July, 1899, far advanced in the disease, the red corpuscles being in the proportion of twelve to one leucocyte. The arsenic was administered over a period of 271 days, during which there were fifty-eight days in which he received none of the drug. The total hypodermic administration amounted to five and one-half grains of arsenous acid, 105 grains of arsenate of sodium, ten and two-thirds grains of cacodylate of sodium; in addition, ten and two-thirds grains of cacodylate of sodium was given by the mouth. The maximum dose administered was two and two-thirds grains of arsenate of sodium, which is equivalent to four drachms of liquor sodii arsenatis. At no time were there objective signs of poisoning, pigmentation of the skin, irritation of the conjunctivæ, nor neuritis. When there was subjective restlessness and a feeling of "pins and needles" in the legs, the arsenic was suspended for a time. The influence of the treatment was for a time apparent in the blood, as shown by the differential count. The average number of red corpuscles kept steadily above three millions per cubic centimeter. The arsenic was rapidly eliminated in the urine, Marsh's test showing large quantities for the twenty-four hours following injection.

OBSTETRICS, GYNECOLOGY, AND PEDIATRICS.

The Pathogenesis and Treatment of Rickets.—

Eric Pritchard, in *Archives of Pediatrics* for February, 1901, calls attention to the fact that rickets is frequently observed among children in well-to-do families. The description of the disease in these cases is substantially as follows: It occurs usually among artificially fed infants. At birth the infant is strong and healthy, it takes its food well, and its weekly increase in weight is decidedly above normal. By the fifth month the child is fat, firm, and presents no symptoms other than a tendency to free perspiration and restlessness at night. Later comes diarrhea, with attacks of general catarrh. The infant takes cold easily, and in severe cases has convulsions. The teeth do not appear until the fourteenth month or later, and the child may not walk until the second year. Even then there is an obvious lack of support to the joints from the lax ligaments, and feeble joints. Constipation is common. The obtrusive

bony deformity which characterizes the most serious cases is absent, but examination will generally show some craniotabes and some beading of the ribs.

These slight forms of rickets occurring in the well-to-do present none of the causes which are deemed important in the development of the disease, but any theory as to the origin of this malady must take into account this class of cases. It is believed that the heating of the artificial food alters the proteid elements, so that the child is practically upon a carbohydrate diet. The author comes to the conclusion that the symptoms of rickets are such as can be explained by the presence of an excess of lactic and similar acids in the system. Excess of lactic acid can be generated when the carbohydrate food is relatively in excess, or when the available oxygen is deficient. Infants fed on excessive diets can develop symptoms of rickets, although no elements necessary for nutrition are omitted. Such can be cured by reducing the food to normal proportions without in any way altering the treatment. The cause of rickets is probably an excess of the carbohydrate element in the food.

The Woolen Yarn Truss in Infantile Inguinal Hernia.—

E. S. Balana, in the *Boston Medical and Surgical Journal* of February 14, 1901, says that this retentive apparatus for children was first described by Pye in 1887, but it is not as well known as it should be. He feels like apologizing for recommending any retentive apparatus, in view of the brilliant results achieved by surgery in this class of cases. In infantile hernia the majority recover, even without operation or treatment, but a greater number would have a closure of the hernial canal if the efforts of nature were aided by some retentive apparatus. The truss which he recommends is easily made at the bedside; it is very elastic, costs only a few cents, and with it very equable pressure is made upon the inguinal canal. It can be duplicated by the mother at a cost of only a few cents. The truss is made as follows:

Measure with a tape line the distance around the child on the plane of the pelvic inlet, beginning with and coming back to the hernia; then carry the line down to the perineum and up and out in the gluteofemoral crease and almost to where it would touch the girdle part. Mark this length on the woodwork of the door or window casing, and at each end of it drive in a three-inch nail halfway to the head. Over these nails wind the worsted, previously rolled from the skeins as bought, just tight enough to keep from kinking, and use thirty to forty threads, according to size and

strength required. Remove the skein, tie in the two loose yarn ends, and in one end loop a foot of white tape, and the truss is ready. Carry it around the child with the long end at the affected groin; pass this longer end through the other loop, draw the long end down under the corresponding thigh, out and up in the gluteo-femoral crease, and tie the tape to the girdle. The double and loosely twisted yarn is so elastic that it will keep up a constant hug, and it will take up any slack made by the motion of the child.

Removal of Pelvic Inflammatory Masses by the Abdomen After Bisection of the Uterus.—

H. A. Kelly, in the *Johns Hopkins Hospital Bulletin* for January, 1901, calls attention to the value of bisection of the uterus in certain cases of inflammatory diseases. In pelvic infections the ovaries are not primarily involved in the inflammation, and one or both of them can be saved even though it is found necessary to remove the tubes. If one ovary is saved, the uterus should also be preserved if possible. Where the ovaries are so seriously involved in the disease, being converted into abscess sacs or large hematomata, that they cannot be saved, it is better to remove them with the uterus. The advantages of bisecting the uterus in the treatment of inflammatory masses is found in the additional space for handling the adherent adnexæ. It also increases the facility for dealing with intestinal complications. In this operation better access is had, both from below and in front, to the diseased lateral structures. By it the pelvic structures are elevated above the brim, or even into the abdomen, bringing them within easy reach of manipulation and dissection. There is the same advantage in approaching both uterine vessels, by cutting through the cervix out through the broad ligaments, as is secured in approaching one of them in the continuous transverse incision method. In general the time of the operation is short, its steps are conducted with greater precision, and the structures are far less liable to be injured.

Successful Reduction of a Chronic Inverted Uterus by Aveling's Repositor.—

Thomas Oliver, in *The Lancet* of January 12, 1901, describes a patient 24 years of age who suffered from an inversion of the uterus eight months before. Attempts had been made shortly after her confinement to restore the uterus to its normal position, but they had failed. She was subject to recurrent hemorrhages and was unable to attend to her domestic duties. At the time she came

under observation an anesthetic was administered and an attempt made to reduce the inverted organ by central and lateral taxis. Part of the prolapse could be carried within the os, but the whole organ could not be returned. Aveling's repositor was then applied and the patient placed in bed. The bands of the repositor were tightened daily. On the third day the instrument was taken away, the inversion having entirely disappeared, the steady pressure of the repositor having accomplished what forcible taxis failed to do.

FORENSIC MEDICINE.

Sausage Poisoning (Botulism).—

Lauk, in the *Münchener Medicinische Wochenschrift* of September 25, 1900, says that this form of poisoning is due to a special bacillus which produces a specific toxin. The poison may be developed in ham or bacon, but is by far most frequent in liver or sausage. The striking characteristic in this form of intoxication is that the symptoms are slow to appear, twelve to thirty-six hours often elapsing from the time the tainted food is eaten. The first to show themselves are a general malaise, with pain in the epigastrium, nausea, or actual vomiting. Later there is a sense of suffocation and great prostration. All the secretions are diminished, and the skin and mucous membranes are very dry. Ulcerated patches appear in the mouth and larynx, and certain cerebral nerves are generally paralyzed. Ptosis is common, the pupils being commonly dilated and reacting slowly to light. Difficulty in swallowing may be so marked as to necessitate the employment of the stomach-tube. The spinal nerves with the central nervous system commonly escape. There is no temperature in the absence of complications. If death occurs, it is commonly eight to ten days after the poisoning, and is usually due to respiratory paralysis, or to some complication such as pneumonia or possibly asthenia from inanition.

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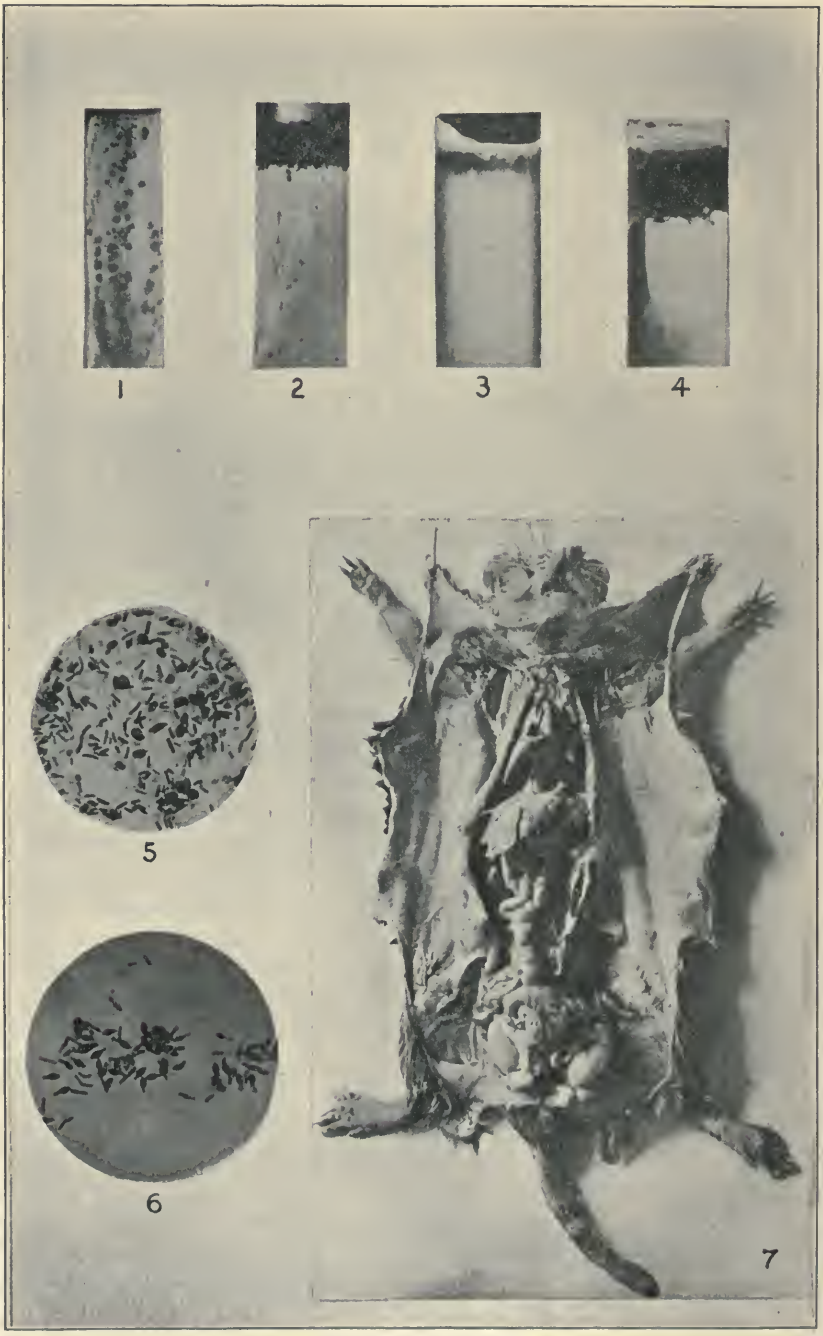
ORIGINAL ARTICLES.

EXPERIMENTAL DIGESTIVE PLAGUE.

BY D. MACDONALD, M.B., C.M. (GLASGOW),
Medical Officer Government Hospital, Adelaide, South Australia.

Dietaries.—Like others, orientals have generally two meals a day, one in the morning and one in the evening. Among the poorer classes, however, they have in addition a midday meal. Disease would be much more prevalent among them were it not for the fact that they cook their food well. Rice is their staple article of diet; fish among the Japanese being next in order, and fowl among the Indians and Chinese. Eggs and vegetables are the next most prevalent foodstuffs. Fruits, which are rarely cooked, are lavishly indulged in. The use of meat as an article of diet amongst orientals is somewhat restricted particularly on account of the wide prevalence of Buddhism and Mohammedanism, and they are thus a more or less dyspeptic race, owing to their staple rice dietary. The Chinese dietary is a very wholesome one, containing plenty of animal and vegetable foodstuffs. The animal foodstuffs are generally boiled before they are exposed for sale. Fish is usually salted if not sold over night. Fowls are plucked, boiled, and then exposed for sale in oriental shops; and although they may have been thus exposed for days, the buyer does not boil them again: they are simply cut into pieces and heated with warm water. Such is also true of pork. The field rat is skinned and exposed for sale in Chinese cities. Its principal food is similar to the oriental staple, rice; doubtless the house rat is often sold in its stead. Although the oriental dietary is spicy and fragrant not only with condiments, but also with decomposition products, the chances of the survival of the pest bacillus in foodstuffs are very remote indeed, owing to indigenous



1. Glucose-gelatin spleen. Two months R. T.
2. Butter broth. Fourth day R. T.
3. Stalactites. Two weeks R. T. Butter broth.
4. Stalactites; R. T. Cocoa butter broth, olive oil.
5. Plague pleomorphs. Alkaline agar. x 1000.
6. Plague pleomorphs. Salt agar. x 1000.
7. Rat inoculated in tail with pest. Died on second day. Showing femoral buboes.

bacterial antagonistic symbiosis. However, fresh and sterilized foodstuff forms the cardinal starting-point of gravity in oriental as in other dietaries. The soil is then inviting.

Refrigeration.—Three plate cultures were subjected by the writer to a freezing temperature. One of them was frozen for twenty-four hours, and the two others for forty-four hours. They were afterward developed at room temperature for three days. The number of colonies that developed in a given time was inversely proportional to the duration of freezing; that is, a greater number of colonies was visible in the plate which had been treated for one day, than in the plates which had been treated longer.

Salting.—When salted agar cultures of the pest bacillus have evaporated it is often observed that a perfect salt cake crystallizes out, demonstrating how it is possible for the pest bacillus to exist on salted foodstuff such as fish.

Alkalinity and Acidity.—Although the cat does not succumb to experimental plague when fed with plague-infected food, it is possible that its saliva may become the domestic host of the pest bacillus; its saliva, being highly alkaline, is an excellent soil for the pleomorphs of the bacillus, which has to contend with only one or two other indigenous species. Owing to its behavior in acid media, and the fact of its acid-production, it should survive the action of the gastric juice.

Feeding.—The three principal portals of plague infection—the pulmonary, the alimentary, and the hypodermic—have their comparative importance. The pest bacillus has been identified throughout the whole extent of the alimentary tract, further autoinfection being sustained by the reabsorption of the bile. Positive results by alimentation with plague foodstuffs have been obtained in monkeys, fowls, rabbits, guinea-pigs, and rats, the latter succumbing after devouring their own dead in preference to other food. Positive results were obtained in two days by cultivation with the following boiled foodstuffs which had been inoculated with pure cultures of the pest bacillus, viz., rice, eggs, fowls, pork, fish, beef, and bread; also with the following vegetables and fruits, boiled, viz., cabbage, lettuce, carrot, potato, tomato, apple, banana, pineapple, sugar-cane, and cocoanut. The pest bacillus lives well upon saccharine and fatty matter, on cocoanut milk, butter, and ordinary milk. The following five animals fed upon plague-inoculated, boiled foodstuffs gave positive results, while their controls gave negative:

Japanese white mouse I was fed upon sterilized rice which was

ADELAIDE HOSPITAL—NURSES' SPECIAL REPORT.

Ward, ... Name, D. MacDonald. Date, 4th July, 1900.

Hour.	Condition.	Food and drink.	Temp.	Pulse.	Bowels.	Urine.	Instructions and remarks.
10.30 A.M.	Splendid.	.....	.....	.....	0	Passed.	
11.30	Active.	One bottle of Lustig's plague nucleoproteid, .04 gramme, containing sufficient for vaccinating four persons in twelve sittings. Mortal dose for one monkey and two large rats. On empty stomach in a little milk very palatable. [Taken in the presence of Drs. Frost and Gocher.]					
12 noon.	Head clear.						
12.30	Active.	.....	98.4°	84	.....	℥ xii, normal.	Respiration normal; slight exhilaration; slight rectal and vesical tenesmus; pain in right shoulder.
1 P.M.	Hungry.	.....	.....	.....	.....	℥ x, normal.	Midday meal; vesical and rectal tenesmus.
1.30	Grand.	.....	.....	.....	.....	.....	Transient frontal occipital twitches; slight pain in right groin momentarily; vesical and rectal tenesmus.
2.25	Active.	.....	.....	.....	.....	℥ x, cloudy, neutral, sp. gr. 1010.	Feeling pains in the groins.
3 P.M.	Splendid.	.....	.....	.....	.....	No albumin, no sugar, phosphates increas'd	Abdominal discomfort and frontal occipital discomfort; rectal and vesical tenesmus.
3.15	Active.	Mouth dry, but not thirsty.	.....	.....	.....	.....	Slight cardiac palpitations.
3.35	Active.	.....	.....	.....	.....	.....	Nasty frontal occipital discomfort; bleeding from gums (slight); slight incoordination when walking.
3.40	Slight frontal occipital fulness.	.....	.....	.....	0	.....	Faint cardiac palpitation.
4.00 P.M.	Active.	A cup of tea and bread.	.....	.....	.....	.....	Slight cardiac dilatations; nasty fulness of head as if one had a cold.
5 P.M.	Active, slight nasal catarrh.	.....	.....	.....	.....	.....	Fulness of head (frontal), as if one has recovered from a narcotic.

5.30	All right; fulness of head less.	Mouth moist.	.....	.....	.....	℥ x, normal.	Abdominal fulness; slight rectal tenesmus; vesical tenesmus; cardiac dilatation.
6 P.M.	Hungry, active, slight sense of vertigo when walking.	Dinner; had good meal; mouth inclined to be dry, but not thirsty.	.....	.....	.....	.....	Transient noise in ear; head slightly throbbing; frontal dulness; slight cardiac palpitations and dilatations; vesical tenesmus absent; slight rectal tenesmus.
7.20 P.M.	Active.	....	.....	.....	.....	℥ xi, normal.	Rectal tenesmus; faint frontal fulness.
8 P.M.	Active.	One cigar.	98°	80	.....	.....	Respiration 25.
9 P.M.	Hungry.	Tea and biscuits.	.....	.....	.....	.....	Transient abdominal colic; pain in right groin and right iliac region.
10 P.M.	Active; occipital fulness; rectal and vesical tenesmus have disappeared.	....	....	.....	.....	℥ vi, normal.	Slight abdominal cramp.
11.15 P.M.	Excellent.	.....	.....	.....	.....	....	Slight cardiac dilatation.
11.30 P.M.	Excellent.	.....	.....	.....	.....	.....	Symptoms subsided.
12 midn't.	Bed.	.....	97.8°	80	.....	℥ vi.	Respiration 18. Slight abdominal colic, ¼ hour.
July 5, 1900.	Slept well.						
8.30 A.M.	Splendid.	Breakfast.	.....	.....	.....	℥ ix.	
9.30	.....	.....	.....	.....	0		
10.15 A.M.	.....	.....	.....	.....	.....	.....	Return of rectal tenesmus, transient, when walking; bleeding from gums slight; faint cardiac dilatation.
11.30 A.M.	Well.	A cup of tea.	97.6°	.....	.....	.....	No symptoms present, but slight transitory rectal tenesmus.
						Total, 24 hrs, ℥ 74.	
	All symptoms subsided; symptoms compressed into twelve hours.	Hungry for all meals; tonic; good general tonic.	Circulating and nervine irritant tonic; no sickness.		No Diarrhea.	Diuretic.	

inoculated with a pure culture of the plague bacillus. It died in two days. Positive results were obtained with the lungs, liver, and spleen. The stomach and bladder were observed full at the autopsy.

Japanese white mouse II was fed upon boiled rice inoculated with a pure culture of the pest bacillus as in the former animal. After having diarrhea it died in sixteen hours. Positive results were obtained with the stomach, lungs, liver, and kidneys.

Japanese white mouse III was fed upon boiled fowl inoculated with a pure culture of the pest bacillus. It died in twenty-five hours. It had staggering gait, its hind legs were flexed and wide apart, and when excited it jumped like a frog. Antemortem, its saliva gave positive results. The lungs, liver, blood of heart, and the bone-marrow of the lumbar spine, post mortem, gave positive results.

Japanese white mouse IV, fed upon boiled fowl inoculated with pure culture of pest bacillus, like mouse III, died in twenty-four hours. When excited it reeled about from side to side, with its hind legs wide apart. The internal organs gave positive results.

Japanese white mouse V, fed upon boiled pork inoculated with a pure culture of the pest bacillus, died in eighteen hours. The pork became peptonized. Positive results were obtained with the lungs, liver, kidneys, stomach, and intestine.

The cultures in the above experiments were furnished me by Staff Surgeon Wilm of the German Asiatic squadron, whose work is referred to in the translation of the Berlin Plague Congress, 1899, by the Queensland government.

Digestive Vaccines.—Sterilized plague vaccines are highly nutritious substances, and when animals are fed upon them immunity is conferred. The writer has administered seventy-nine doses to human beings, per os. Beginning with .04 gramme the writer swallowed the vaccine, a detailed account of which is given in the appended chart. A case of phthisis pulmonalis, to which a continued course of plague nucleoproteid was given, was greatly improved and spontaneously left the hospital, stating that he felt nothing wrong with him now; .04 gramme, taken in some peppermint chloroform water, was subsequently found to be a convenient quantity when divided into three parts, one of which was taken thrice daily.

"Health which we enjoy, no matter how it is obtained and maintained, is detrimental to plague. The best antidote is plenty of good food, fresh air, and sunshine, and the nearer we approach to nature's method the more perfect will be the immunity. There is ordinarily

sufficient iron in foodstuffs, yet there are times when anemia does occur, and when assimilable iron compounds are furnished it is rectified. Plague makes its abode only in the system that has a poverty of 'nuclein,' its natural defense in the fluids and organs of the body. This poverty can be rectified by its internal administration. Plague is an acute nuclein edema of the lymphatic system which may be localized or generalized. In civilized countries it is not at all likely that people will turn up annually to be vaccinated and revaccinated, although efficiency of immunity depends upon this, and many will not have plague germs put under their skin, but rather run the risk of getting the disease. Plague is an acute phosphorus poisoning with the plague bacillus, which is very fatal to man and rats. Plague nucleinate is a highly phosphorized substance, a good nerve tonic, like coca, and a food for young growing animals. In concentrated doses it is as nutritious as bread, milk, and eggs. Thus without the slightest inconvenience we furnish the human system with its own natural defense against this malady. Immunity can be established and maintained in several days. Nuclein, the essential element of the plague bacillus, belongs to a tribe of proteid compounds resembling the antiseptic albuminates of silver and mercury. The nucleinic acid of nuclein combines with metallic and non-metallic salts, forming nucleinates insoluble in acids and soluble in alkalies. They resist peptic and tryptic digestion, and are slightly soluble in oils, fats, and mucin. As found in normal blood the alkaline nucleinates are bactericidal and externally are good antiseptics. They are recommended therapeutically for rheumatism, cancer, and infectious diseases. Nucleinate of iodine is used in myxedema, and nucleinate or iron in anemias and tuberculosis; milk nuclein, egg nuclein, liver nuclein, thyroid nuclein, and spleen nuclein, all differ from one another. In Haffkine's plague vaccine the nuclein therein contained is not suitable for assimilation unless very large doses be ingested in an alkaline solution, and then at the expense of nausea. Plague gland nuclein, like all other nucleins, is best given by the mouth. Its hypodermic administration is not adapted for a continuous course of the nuclein treatment. Plague nuclein is an albuminate or nucleinate of phosphorus, and intimately associated with mucin.

"All nuclein treatment requires therapeutically a continued course, and in the prevention of plague this is clearly indicated. Plague nucleinate is the essence of living animal and vegetable cells —a concentrated natural foodstuff. Plague nuclein, the essential immunizing substance of the plague bacillus, is a good physiological

nervine, with mild diuretic properties. Externally and internally it has good antiseptic and bactericidal properties. In its transit through the stomach it is not acted upon by the gastric, or later by the pancreatic, juices, but is dissolved and absorbed in its original form in the intestines. Thus it does not interfere with digestion, has no effect on the temperature, pulse, or respiration, but acts as a mild tonic on the lower centers of the spinal cord, and furnishes the system with a defensive substance. Like quinine against malaria, iron in anemia, or thyroid tablets against myxedema, it may in endemic plague be taken periodically. As found in Lustig's prophylactic it is a very nutritive substance, a chemical food (although yeast nuclein would act equally as well), and a charming ideal method of preventive medication to resist an affection of the lymphatic system with the plague bacillus. By its periodic ingestion it will furnish lymphatic glandular bactericidal foodstuff as is already formed in the human system. It is perfectly harmless and innocuous."

CLINICAL OBSERVATIONS ON PROTARGOL, WITH A RESUME OF THE LITERATURE.

BY MAX REICHMANN, M.D.,
Instructor in Dermatology and Venereal Diseases at the Post-Graduate Medical School of Chicago.

Protargol is deservedly the most popular of the so-called specifics for gonorrhea. It was first described by Eichengrün, and later Neisser[1] called attention to the value of the drug. He opposed the expectant plan of treatment of gonorrhea and pointed out the disadvantages of Janet's irrigation method with permanganate of potassium. The remedies for injection, according to Neisser, should be those "which positively kill the gonococci without irritating the mucous membrane and possibly without increasing the inflammation and formation of pus." Among such remedies, the silver salts, with protargol in the lead, are the most important. Neisser especially directs attention to the fact that watery solutions of protargol are not precipitated by albumin or dilute chloride of sodium solution or hydrochloric acid. In consequence of this fact the drug has great penetrating power.

At the International Congress of Dermatology, held in Strasburg in 1898, Neisser[2] laid especial stress upon its use in acute cases, stating that reported failures had been due to faulty solutions. In this discussion Behrend[3] stated that his results were unsatisfactory, but admitted that his cases were few in number and that he had employed two solutions, one of alkaline and the other of acid reaction. R. W. Frank[4] and Ruggles[5] have obtained good results in the majority of cases.

Welander[6] has prepared a treatise on the drug, in which he describes its bactericidal properties as well as its clinical application. He uses irrigations with solutions of one-half per cent protargol, and recommends prophylactic injections of from three- to four-per-cent solutions. Rosenthal[7] treated sixty-eight cases, of which fifty-three were acute and fifteen chronic. From his results he concludes that protargol "is the best remedy that has so far been recommended." Lesser, Joseph, and others agree in this view. Bloch[8] has a less favorable opinion, which has been expressed in a joint communication with Kauffmann.[9] Benario[10] found that the drug had strong germicidal properties and that it was especially deadly for the gonococcus. Barlow[11] says that prolonged injections are very beneficial in acute anterior urethritis. Involvement of the posterior urethra is less frequent than with other forms of treat-

ment. Bender[12] treated sixty cases of gonorrhea, the gonococcus disappearing in from one to three days in twenty-five cases, in from three to six days in ten cases, in six to ten days in fifteen cases, in from ten to fifteen days in ten cases. Kreissl[13] reports good results; and Finger,[14] the apostle of the expectant plan of treatment, says protargol is a very effective agent. Strauss[15] believes that protargol deserves to rank as a specific. Stark[16] considers it an excellent remedy, in which favorable opinion Wentscher[17] joins.

Fürst[18] relates in detail the treatment of gonorrhea in the female with protargol. He says it is the best method of treating this infection in women, and when applied in a strictly systematic manner it destroys the specific organism without causing irritation. If the inflammation has extended to the cervix, the whole uterine cavity must be treated. With strict rest of the affected parts, a cure can usually be effected with this agent in three weeks. Tubal complications are less frequent with this treatment.

Goldenberg,[19] from a study of sixty cases, concludes that protargol surpasses all other agents in the treatment of gonorrhea. Schwerin[20] uses protargol in irrigations, but does not regard it as superior to nitrate of silver; he recommends it in acute and chronic cystitis. Lohnstein[21] says it is unirritating and is superior in acute gonorrhea to argentamin and argonin, but only in cases of special irritation should it precede nitrate of silver. Wunn[22] reports the disappearance of the gonococcus in only four cases out of forty-two. Desnos[23] has had good results from an instillation of a five-per-cent solution. In a second publication[24] he describes his methods and reports thirty-seven cures out of forty-six cases. Fournier[25] considers a treatment of four weeks necessary, but regards it as one of the best preparations. Guillon[26] says that it has proved its value in ocular therapeutics. Masse[27] believes that Janet's irrigations with protargol are less effective than those with permanganate of potassium. Baum[28] has treated fifty cases, and concludes that when the drug is used as directed by Neisser, it is a distinct advance in treatment. Swinburne[29] and Youmans[30] preceded the injections by irrigations with permanganate of potash. Ahlstrom[31] has used the drug as an abortive agent, and failed in only thirteen out of one hundred cases. Tiptrew[32] used the remedy in a large military hospital; his experience was not as favorable as that of others, but he speaks of the unirritating action of the drug. Wereschtschagin[33] says protargol is the most efficient remedy in the treatment of gonorrhea, if employed early. Emmert,[34] Pergens,[35] Jänner,[36] Neisser,[37] Deneffe,[38] Valencon,[39] Girard,[40] Bassolino,[41] and Alexander[42] have used the drug in the eye, nose, and throat.

Case.	Time of discharge and attack.	Double-glass urine test.	Microscopic examination.	Diagnosis.	Decursus morbi.
I. 19 yrs.	2 days, 1st attack.	1st turbid, 2d clear.	Many intra- and extra-cellular gonococci.	Urethritis gon. ant. acuta.	Amount of gonococci greatly diminished after second day; constant absence after 4 days; discharged cured after 22 days.
II. 24 yrs.	3 days, 3d attack.	Both glasses turbid.	Intra- and extra-cellular gonococci.	Urethritis gon. ant. et post., prostatitis chron.	Instillations, 1% protargol; omitted after third on account of prost. ac. et epidid. bilat.; resumed after 20 days for 10 days, then injections (once daily, 1%) for 5 weeks.
III. 28 yrs.	2 days, 3d attack.	1st very turbid, 2d clear.	Numerous gonococci.	Urethritis gon. ant. subacuta.	Absence of gonococci after six days; cured after 19 days.
IV. 18 yrs.	2 days, 3d attack.	1st turbid, 2d clear.	Numerous gonococci.	Urethritis gon. ant. acuta.	Gonococci diminished on third day, absent on sixth day; discharged after 22 days.
V. 20 yrs.	5 days, 1st attack.	1st turbid, 2d clear.	Numerous gonococci.	Urethritis gon. ant. acuta.	Absence of gonococci on the seventh day; cured after 21 days.
VI. 25 yrs.	4 days, 4th attack.	Both glasses turbid.	Numerous gonococci.	Urethritis gon. ant. et post. subacuta.	Instillations and injections; gonococci disappeared after 6 days; cured after 23 days.
VII. 24 yrs.	6 days, 4th or 5th atttack.	1st turbid, 2d clear.	Numerous gonococci.	Urethritis gon. ant. subacuta.	Absence of gonococci after 6 days; cured after 21 days.
VIII. 24 yrs.	3 days, 2d attack.	1st turbid, 2d clear.	Numerous gonococci.	Urethritis gon. ant. subacuta.	No gonococci in 6 days; treatment continued 2 weeks, when patient was discharged cured
IX. 23 yrs.	1 day, 4th attack.	1st turbid, 2d almost clear.	Not very many gonococci.	Urethritis gon. ant. subacuta.	Gonococci absent on the eighth day; discharged after 19 days.
X. 20 yrs.	4 days, 3d attack.	1st turbid, 2d clear.	Many gonococci.	Urethritis gon. ant. subacuta.	Gonococci disappeared after 4 days; cured after 23 days.
XI. 26 yrs.	4 days, 2d attack.	1st turbid, 2d clear.	Numerous gonococci.	Urethritis gon. ant. subacuta.	Absence of gonococci on the ninth day; cured in 20 days.
XII. 21 yrs.	1 day, 2d attack.	1st turbid, 2d clear.	Numerous gonococci.	Urethritis gon. ant. subacuta.	Gonococci disappeared on the eighth day; cured in 20 days.
XIII. 20 yrs.	2 days, 3d attack.	1st turbid, 2d moderately clear.	Many gonococci.	Urethritis gon. ant. subacuta.	Absence of gonococci on the fifth day; cured in 19 days.
XIV. 23 yrs.	3 days, 2d attack.	1st turbid, 2d clear.	Moderately numerous gonococci.	Urethritis gon. ant. subacuta.	Gonococci absent after 9 days; cured after 21 days.
XV. 19 yrs.	2 days, 2d attack.	1st turbid, 2d clear.	Numerous gonococci.	Urethritis gon. ant. subacuta.	Gonococci absent after 8 days; cured after 22 days.
XVI. 21 yrs.	2 days, 3d attack.	1st turbid, 2d clear.	Many gonococci.	Urethritis gon ant. subacuta.	Gonococci absent after 9 days; discharged after 21 days.

I have used the drug in forty-two cases in the ambulatory clinic of the Post-Graduate School. This material is not available for study. In private practice, sixteen patients have been treated from October, 1899, to October, 1900. The results in these cases demonstrate the value of the drug. In every case treatment was begun with a one-half-per-cent watery solution, which was injected four times daily for three days. The fluid was to be retained in the urethra for five minutes at the morning, noon, and afternoon injections, while in the evenings two successive injections were to be taken and retained ten minutes each. At the end of three days a one-per-cent solution was ordered, which was to be used once a day, providing the microscope revealed no gonococci.

From the above it will be seen that of the sixteen cases fourteen had involvement of the anterior urethra, and two presented at the same time a posterior urethritis. Only four patients were attacked for the first time, while in the other twelve cases one or more attacks had occurred. All sixteen patients applied for treatment during the first week after the appearance of the acute symptoms, and only in the one case of posterior urethritis was I compelled to stop the treatment on account of the occurrence of complications; but even in this case protargol finally gave satisfactory results, though the treatment had to be continued for a longer time. In the other fifteen cases a complete disappearance of the gonococci could be observed between the third and ninth day; nevertheless the patients continued daily a prolonged injection for about ten minutes with a one-per-cent solution for at least two weeks. The entire course of treatment did not exceed a period of twenty-three days, except in the case in which complications occurred.

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CHLORETONE ANESTHESIA AS AN AID IN SUBARACHNOIDEAN OPERATIONS.

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I have used chloretone in forty-one cases as an anteoperative hypnotic, the doses being from five to twenty grains. My custom was to administer the drug two hours before the patient was to be carried to the operating-room, and in almost every case it was found that within twenty minutes after the administration of the drug the patient had fallen into a deep sleep, without the slightest effect upon the heart-rate or rhythm or any evidence of other than perfectly normal sleep. In the majority of cases when the patient was carried to the operating-room he had to be aroused from this sleep, and it was noticeable that there was generally a complete absence of that feeling of fright and nervousness which patients ordinarily exhibit on entering an operating-room. After the administration of the anesthetic the patient always remained very quiet and sank gradually into a state of narcosis, the primary stage being very short, and the secondary stage being decidedly less violent than the average. As to the after-effects, it was noticed that the nausea and vomiting were markedly diminished, the patient as a rule remaining perfectly quiet, and in some cases falling into a sleep which lasted from one to four hours. In very few cases did the patients complain of pain to the same extent as is usual with those who are operated on without the previous administration of chloretone, while the pulse-rate and strength were found to be stronger than those of patients who had not received the drug. Indeed, the drug proved so efficacious that at night-time after the operation the patient usually fell into a quiet sleep and did not give the customary trouble and worry of the average postoperative case. The postoperative headache, too, which is so very common, was also markedly reduced in this series of cases, as was likewise the characteristic thirst. In some cases where there had been marked restlessness even with the use of this drug before the operation I administered five grains of chloretone about 9 P.M., and within twenty minutes the patients were generally found to have fallen into a deep, quiet sleep. In this way the most restless patients are often able to gain several hours' refreshing sleep, and in the morning after the operation their condition is much better than that of the average.

Having said so much by way of generalization, I may be allowed to give brief accounts of five cases of spinal anesthesia with one per cent cocaine and eight-tenths of one per cent chloretone.

The first two cases were Fuller operations in prostatectomy, both patients male, aged, and poorly nourished, the second case being bedridden and dangerously close to uremic coma. As a preparation (systemic) for the anesthesia twenty grains of chloretone in crystals was administered per os two hours before the operation. In scarcely more than a quarter of an hour each patient had fallen into sleep so profound that they scarcely woke when being lifted from their cots to the trolleys on which they were removed to the antechamber of the operating-room, where they remained in a deep and apparently natural sleep.

Case 1.—Prostatectomy. Primary anesthesia with ether plus subarachnoidean injection of one-per-cent cocaine with chloretone; operation beginning seven minutes after injection, when the absence of tactile sense was manifest in the lower extremities. Time of operation twenty-three minutes, in which time the operating surgeon removed what he said was the largest hypertrophy of the prostate that he had ever seen. Pulse at beginning of operation 64, highest point reached during operation 84, and that only for a few minutes after the operation had been under way for some five minutes, this corresponding surgically to the incision through the floor of the bladder and the detaching of the gland from the containing tissues; average pulse during the operation 80. No trace of stomach disturbance at all, not even so much as simple belching, and no soiling of the operating table by other excretions, except a very slight dribble of urine while the prostate was being forcibly manipulated, so slight as to be disregarded. This operation represents one class of the uses I have been making of chloretone in lumbar puncture—that is, as an adjuvant to a reduced amount of some other general anesthetic. In this case septicemia developed, and the man died eight days after the operation.

Case 2.—Prostatectomy. No general anesthetic; operation performed entirely under spinal anesthesia of one per cent cocaine plus chloretone. Time of operation eighteen minutes, beginning eight minutes after spinal injection, when anesthesia was clearly marked in the lower extremities. When the incision was made in the abdominal wall the patient said "ouch" with no more force than would be given it by a young girl when pricking her finger with a pin. During the operation he said, "I wonder what those doctors are prodding my belly for," the remark as it happened being made at the time when the operating surgeon had his hand within the abdominal cavity and was shelling out the gland. No disturbance of the stomach or of the excretory functions. This case did very well for two weeks after the operation, and then died of general asthenia.

Case 3.—External urethrotomy. Patient came into the hospital complaining of inability to pass his water freely, and adding that he had had gonorrhea five times, and had a constant desire to void his urine, never being able to empty his bladder. On examination he was found to have a deep-seated stricture of the urethra. The patient was operated upon at two o'clock on Friday by the house surgeon, an ordinary external urethrotomy being performed. Spinal anesthesia was produced in seven minutes by the subarachnoidean injection of ten minims of a solution of one per cent cocaine mixed with saturated solution of chloretone (.8). The anesthesia was complete. The operation lasted forty-five minutes without the slightest pain to the patient, who made an uneventful recovery.

Case 4.—Male, 22 years old. Operation, Thiersch skin-graft for syphilitic leg ulcer. Anesthesia was produced in the same way as in the last case. In nine minutes complete anesthesia was established. This patient had previously received, like the others, twenty grains of chloretone two hours before the operation. There was no nausea, vomiting, or cyanosis, nor any of the disturbances commonly met with, during the operation in the administration of spinal cocaine anesthesia. The pulse-rate was unchanged, and there was no evidence of nervous depression. The operation was begun at 11 o'clock and finished at 12.10, during which time a half-dozen or more skin-grafts were cut from the thigh and placed on the ulcers on the shin without the slightest sensation of pain to the patient. The operation having been completed the patient was removed to his ward, and two hours and twenty minutes thereafter it became apparent that he was beginning to experience a return of painful sensations. The operation in this case was absolutely successful, and the patient had an uneventful recovery.

Case 5.—Male, 43 years old. Patient in a condition in which he was unable to take general anesthesia. Operation, Thiersch skin-graft for leg ulcer on the right side. Anesthesia was administered at 10 A.M., one-per-cent solution of cocaine, ten minims, combined with saturated solution of chloretone (.8). Ten minutes after the injection of the solution into the subarachnoidean cavity the whole of the lower portion of the body, from the umbilicus downwards, was free from sensation to pin-prick. The operation was then begun. Skin-grafts were cut from the right thigh and placed upon the ulcer, which had been previously curetted, and in about thirty-five minutes the operation was completed without the slightest painful sensation to the patient. There was slight nausea in this case, although twenty grains of chloretone had been

administered two hours before the operation was commenced. There was, however, no actual vomiting or retching. The patient was given a glass of water during the operation, but even then did not vomit. Painful sensation returned in the legs fifteen minutes after the operation had been completed. The operation was successful, and the patient made an uneventful recovery.

Whether or not the combination of chloretone with the cocaine has any specific action I am not prepared to say, but of this I am certain, that the administration of chloretone previous to the operation had a most decided effect in the way of lessening the usual nausea, vomiting, cyanosis, increase in pulse-rate, perspiration, and other evidences of collapse in these five patients. I am also satisfied that the administration of chloretone previous to the operation had a marked influence in lessening the depressing action of cocaine usually experienced after the subarachnoidean operation.

I had previously been in the habit of using the bromides as a preparatory adjuvant, but my experience with chloretone has convinced me that it is a much better hypnotic for this purpose. I feel assured that singly or combined with hyoscine hydrobromate it will in almost all cases control the unpleasant and distressing symptoms of subarachnoidean injection of cocaine. These five cases show that subarachnoidean injections can be properly and harmlessly performed without fear of nervous disturbances or disagreeable subjective effects. In all these cases the rise of temperature occurred which is generally seen in these operations. This, however, I do not believe to be caused by the injection of cocaine or any other drug, but rather by interference with the intraspinal pressure due to the withdrawal of the cerebrospinal fluid, for in a number of cases where other drugs than cocaine were used, even when it was only a salt solution, the same rise of temperature was observed.

I have employed subarachnoidean injections of cocaine in the neighborhood of 200 cases,[1] using various drugs an an anteoperative precautionary measure. None of them have given satisfaction in the same number of cases as chloretone. I do not wish to appear overenthusiastic in regard to this drug, but my experience with it and others leads me to believe that in it we have found at last the proper remedy and aid in making subarachnoidean injections of cocaine simple and harmless.

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[1] "Cocainization of the Spinal Cord by Means of Lumbar Puncture During Labor," *American Journal of Obstetrics and Diseases of Women and Children*, vol. xliii, No. 2, 1901.

THREE CASES OF OSSEOUS STYLOHYOID ARCH.[1]

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The hyoid bars, or Reichert's cartilages, are the skeletal elements of the second branchial arch. They are typically divided into four parts on each side joined end to end, and called pharyngobranchial, epibranchial, ceratobranchial, and hypobranchial. The dorsal one of these parts (pharyngobranchial) fuses early with the cartilaginous periotic capsule and becomes, in the adult human, the styloid process of the temporal bone. The second part (epibranchial) becomes partly ligamentous in all placental mammals and wholly so in man, forming the stylohyoid ligament. The third part (ceratobranchial) and fourth part (hypobranchial) both become cartilaginous and ossify early, forming a single piece of bone. This becomes the lesser cornu of the hyoid bone in the adult, and often also contains a small part derived from the second or epibranchial division. The adult hyoid arch then comprises the styloid process of the temporal, the stylohyoid ligament, and the lesser cornu of the hyoid bone.

The body of the hyoid and its greater cornua are derived from the third, or thyrohyoid, branchial arch. The cartilaginous elements of this arch consist primarily of two basihyoids, which fuse and ossify from a single center to form the body of the bone, and two thyrohyoids, which ossify and fuse with the body forming the two greater cornua.

The hyoid bone proper, except for differences in shape and comparative size, is practically a constant structure in the higher vertebrates. There is, however, in the stylohyoid arch much difference in the extent of ossification. In many the arch is completely bony, as in the horse, cow, sheep, elephant. In the dog, cat, and other carnivora there is still an almost complete bony arch, but the separate parts are often united by long ligamentous bands to allow of more freedom of motion. The four typical parts are not always distinct in these cases where complete bony arch exists.

It is not unusual to find developmental defects in the hyoid arch of man, more or less of the stylohyoid ligament on one or both sides being represented by osseous tissue. It is, however, comparatively rare to find a complete and symmetrical bony arch exists. It is rarer still to find cases where the four primary divisions of the cartilaginous hyoid bars exist as separate and distinguishable elements, though this is sometimes seen, as in a specimen presented to the

[1] Presented at the February meeting of the Chicago Pathological Society, 1901.

Anatomical Society of Paris in August of last year by Sebileau and Gibert. They briefly review the literature of the anomaly, finding the first recorded observation by Serres in 1818.

Two of the three cases of bony hyoid arch presented were recently found in the post-mortem room of the Cook County Hospital; the third is an old specimen from the Rush Medical College museum of pathological anatomy. In none of the cases was the condition noted before death, nor did it give rise, so far as known, to any recognizable difficulty. Of one of these cases I am able to present only the fact of its observation, the specimen having been mislaid or destroyed. It concerned a complete bony arch with fibrous articulation at the hyoid ends. I am not able to say that each of the four divisions was present as a separate articulated piece on either side, only that there was no considerable portion of ligamentous tissue. The arch of the second case was roughly removed, and hence mutilated by fracture. It articulated with the temporal at the normal location of the styloid process, with slight or no mobility. In the specimen presented there remains the greater part of the epibranchial, a straight, roughly cylindrical bone about five centimeters in length, which represents the normal stylohyoid ligament. The ceratobranchial is also osseous and something less than a centimeter in length. It articulates loosely by fibrous tissue with the epibranchial above, and below with the diminutive hypobranchial or lesser cornu of the hyoid. Or possibly this small division represents the epi- and hypobranchial fused together, hence the whole of the lesser cornu, the fibrous union being directly with the body of the hyoid at the normal location of its lesser cornu. The third specimen has been preserved entire, including a part of the temporal on either side. In this case the separate parts are plainly made out. On the right side the dorsal segment (pharyngobranchial, or styloid process) arises from the base of the temporal, behind and internal to the vaginal process, as a bony projection 1.5 centimeters in length, the union being osseous and immovable. It is paralleled for half its length by the flattened and elongated vaginal process, and with this it is firmly fused. On the left side the first segment is two centimeters long, and articulates laterally with the vaginal process of the temporal by close, though slightly movable, fibrous union. These upper segments articulate end to end by fibrous union with the second segments (epibranchial or stylohyoid ligaments). There is only very slight motion at this joint. The second segments measure six and five centimeters in length on the right and left sides respectively. The remaining segments are as in the preceding case, the fused cerato- and hypobranchials (representing the lesser cornua of the hyoid), measuring .75 and 1 centimeter

Arch from Case 3.

on the right and left sides respectively. The union at either end of these bones is a loose fibrous hinge. The hyoid bone presents no gross abnormality of form or position in either of the cases.

This anomaly is to be considered one of development only. It has its origin in the embryonic tendency of cartilage to ossify, and is not an ossification of the stylohyoid arch once developed in the usual way. It is a reversion to a lower type. So far as I know it is interesting from the anatomical standpoint only, and has no clinical importance beyond the possibility of fracture and its complications. The bones being situated deeply in the tissues of the neck and so high up as to be much protected by the lower jaw render this accident improbable.

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THE MALARIAL CAUSATION OF CRANIAL NERVE PARALYSIS; WITH A CASE.

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The existence of cranial nerve paralyses of malarial origin that closely resemble symptoms due to meningeal inflammations or to deposits of adventitious matter in the brain is likely to cause serious errors in diagnosis and treatment, and such causation from its rarity is often unsuspected and not recognized. This failure of detection is particularly common with those who are disposed to be too exact and conventional, and who are tied to traditions of classification. The writers of this paper were reminded of this condition of affairs by a case of oculomotor paralysis that had been diagnosed as syphilitic by at least two persons, one of whom was a neurologist, and who had pronounced the case hopeless after a vigorous treatment with iodides, mercurials, and specific treatment. At a consultation with the oculist and this neurologist, the attending physician, yielding to the opinion of the consultant, and against his own judgment and expressed opinion that the condition was malarial, which opinion was said to be untenable by the consultant, put the patient upon a strict and rigid specific treatment. After this had been thoroughly tried, and in view of the attending physician's former opinion—in which opinion Dr. Hamilton, who was then consulted, concurred—and in view also of the absence of any specific history and former malarial neuritis, an examination of the blood was made, which was confirmative, and the patient rapidly got well under the influence of quinine.

An investigation of the literature of malarial affections of the nervous system discloses the existence of several interesting cases of malarial neuritis of the cranial nerves, which throw much light upon this subject, and many of these have been collected by Browning, of Brooklyn; and Morini and Singer, as well as Kipp and MacNamara, have pointed out the existence of mono- or multiplegias. It is certain that the optic nerve often undergoes white atrophy, and paralysis of the eye muscles has been observed so often as to suggest that there are many well defined cranial nerve paralyses that are amenable to antiperiodics. Browning[1] reports two cases of his own in which the symptoms in many ways resemble those of brain tumors, and the second one may be reported as illustrative of a well marked malarial nervous disease:

"Boy of nine years, referred to me by Dr. Law, April 30, 1892.

[1] *Brooklyn Medical Journal*, January, 1893.

'He has always been malarious;' otherwise well until two months ago, when he came from school complaining of occipital ache. This increased so that he would cry all night. Meanwhile the head became turned to the left (*i.e.*, it tipped to the left with the chin a trifle to the right—wryneck). A thorough course of quinine has somewhat relieved the neck, and, to a slight degree, other symptoms. The headache has the last two weeks changed to supraorbital; it is not continuous; he may be two, three, or four days free, then often suffers all day, though it may change rapidly; it often begins about 2 or 3 A.M.; no supraorbital or suboccipital tenderness. One morning about five weeks ago the left eye was noticed to be turned in, and this is now thought to be true of both eyes. At first there was double vision, but he no longer minds it. The left eye is said to be worse than at first; it is directed not only inward but a trifle upward. On testing, the right eye fails to turn fully to the right, though in all other directions. Hence, as the left eye turns outward only just to the median line, there is a paralysis of the left abducens and paresis of the right. Up to a couple of weeks ago, if lying on his back, he had difficulty in rising because of pain in the popliteal region. Tongue much coated; it comes out straight, but in the act of retracting invariably turns to the right; some morning nausea, relieved by food; average grip, R. 24, L. 27 (is right-handed, though several in family are left); tendon reflexes all normal; turns and tips the head in all directions with about equal freedom; he seems to hold head slightly tipped to the left, however—possibly an attempt to compensate for a weak eye muscle. Apparently feverish at times, and Dr. Law found some rise in temperature. Hands and feet now always cold; heart rather large, cardiac sounds clear; pulse 104 and weak; pupils equal—both wide, even on illumination; right retina pale, granular, showing one whitish, radiating streak; the disk somewhat blurred and indefinite; vessels small and few; both disks pinkish, the left more blurred or choked, and shows several faint lines, with few vessels; mental condition said to be clear, still there is some stupor, listlessness, and a countenance devoid of expression; splenic dulness five inches across. My own examination of a single sample of blood proved negative (been taking quinine).

"Patient was then sent into the country, and improved in all respects until July 19, when he had an onset of fever lasting two days, leaving him totally blind. In this attack he had a series of convulsive movements in the left arm, throwing this and the shoulder forward across the chest. There was no loss of consciousness, and

he was able to foretell the spasm each time. The optic disks now showed more blurring of outline, pinkishness, and swelling. In either macular region there were transverse white bands, as though a rake had been dragged across; also an occasional irregular white spot in either fundus. He was frequently troubled by itching, first in one part of the body, then in another. More vigorous treatment was now instituted.

"By August 19 he had recovered in all respects except vision; right eye still blind; in left perception of light only; no weakness of any ocular muscle; pupils react from either eye; optic disks somewhat clearer; splenic dulness half an inch less; is said to be brighter than ever before in his life. There has been further subsequent improvement in vision, so that now (November) he can distinguish objects, and black from white."

Our own case is that of Mr. F——, an architect, 31 years of age, who during his early life and recently has lived in a country in which various forms of malarial fever flourished. Has had several attacks of chills and fever. Several years ago he had an attack of neuritis, involving the right forearm, affecting the ulnar nerve and the circumflex. This yielded to quinine, a diagnosis of malarial neuritis being made. On the morning of November 26, 1894, he awoke, having gone to bed the night before feeling fairly well, and on trying to get up was dizzy and could not stand. Complained that he "saw double." Pupils normal. His wife noticed that the right eye was "turned out," and he was only able to get about when he tied a handkerchief over this eye. He at once saw an oculist, who made the diagnosis of syphilitic tumor of the brain pressing on the motor oculi communis, which was concurred in by the neurologist at a consultation; and though the family physician did not agree, he placed the patient on mercurials and iodides. Mr. F—— denied all specific disease, except gonorrhea, which he last had twenty years ago, and he did not present any evidence, nor did he give any history, of any specific trouble. He was ordered by his physician South for two months, and a rigorous régime and antisyphilitic treatment followed out conscientiously by him, the iodide being run up to 120 grains per diem. He returned to New York much better physically, but the condition of the eye muscles was the same. Dr. Hamilton then saw him, with the family physician, Dr. Morris, and he agreed that there was no evidence of syphilis, but a strong suggestion of malaria. The blood was examined, and the crescentic form of the plasmodium found. He was put upon large doses of Warburg's tincture and bone-marrow extract. In five days his eye was perfectly normal, and during the

last six years has remained so, he never having had the slightest return of the eye paralysis, though he has had two or three slight attacks of the neuritis of the right arm during that period.

The authors of this paper think that sufficient time has elapsed to prove that it was not a syphilitic process which had suddenly subsided, but that it was distinctively a case of malarial neuritis of the third nerve.

In the literature of malarial paralyses and neuroses, except in the instances mentioned before, very little has been reported which bears upon this case directly. So far as we are aware there has been no case reported which has presented so striking a picture as this one in these respects, viz.: the sudden onset; absence of fever, the temperature never going above 99.5° F.; the long course of iodide and mercury treatment, with no result; the affirmative examination of the blood; the very rapid subsidence of all symptoms under quinine and tonics. It is true that after malarial infection of the more severe forms, neuroses, and especially multiple neuritis, are occasionally found; and Dr. G. Chiarnini, of Rome, states that the most common forms are the lesions of the optic nerve and retina, temporary or intermittent amaurosis or amblyopia, and he quotes observations by Pennoff in Tiflis, Stöber, Koslorowsky, and Jacobi, who wrote on the subject in 1868; but we have been only able to find the case of Browning, besides our own, of paralysis of the motor muscles of the eye from malaria, though probably other such cases have been reported.

As to how the malarial plasmodium is causative of such paralysis, it is not perhaps clear. Profound anemia, or ptomaine intoxication, might cause a multiple neuritis. Guarnieri in cases of malarial retinochoroiditis finds that the arrangement of the red cells in the choroid in the large vessels follows the same law as Marchiafava and Bignami have described in other viscera, viz., that in the larger vessels the red globules with adult parasites always occupied the peripheral columns, and there were many leucocytes rich in pigment. In the capillaries the red blood cells contain the plasmodium in its highest state of development, and the endothelial cells of some of the capillaries are swollen, with prominent nuclei, and fine pigment granulations in the protoplasm. In the retinal capillaries only red blood-corpuscles rich in plasmodia are found. That this same condition exists in the vascular supply to the nerve trunks and centers is probable, causing minute thromboses and consequent anemia of the nerves, or nerve centers. This would possibly explain the pathology of cases such as the one reported.

BOOK REVIEWS.

THE AMERICAN YEAR-BOOK OF MEDICINE AND SURGERY. Being a Yearly Digest of Scientific Progress and Authoritative Opinion in All Branches of Medicine and Surgery. By Numerous Authors, under the General Editorial Charge of George M. Gould, M.D. Vol. I, General Medicine; Vol. II, General Surgery. Price, $3.00 per volume. Philadelphia and London: W. B. Saunders & Co. 1901.

It has been the custom of this journal to review each successive issue of the Year-book of Medicine and Surgery at considerable length, but the increase in size, the combined volumes having 1291 pages, makes an exhaustive reference impossible. The plan which was adopted last year of issuing the Year-book in two volumes has proven very satisfactory, permitting those who wish to have only the surgical or medical volume to obtain it without buying that which they do not need. But a single change in writers is noted, namely, the addition of Dr. A. O. J. Kelly to the section on pathology.

Volume I. *Medicine:* 278 pages are devoted to general medicine, under the charge of Alfred Stengel and D. L. Edsall. It is a remarkable review of the work of the past year and shows that there has been a revision of methods and a recasting of theories on almost every topic. The bacteriology of rheumatism, the treatment of tuberculosis, the malarial fevers, and last, but by no means least, typhoid fever, have received most extensive consideration. This chapter is wholly devoted to abstracts, the editors having injected but very little material of their own, and this is sedulously enclosed in brackets.

In Pediatrics, as was to have been expected, the problem of infant feeding seems to be the one which has attracted most attention. Next to that the infectious diseases of the alimentary tract.

In Pathology, tuberculosis, syphilis, typhoid fever, and the gonococcus seem to have the most attention directed to them. The amitotic cell division, as noted in new formations by Nedjelsky, is abstracted, and there is a reproduction of the third plate of his article.

The remaining contents of the volume on medicine are devoted to nervous and mental diseases, diseases of the skin and syphilis, materia medica, experimental therapeutics and pharmacology, physiology, legal medicine, public hygiene, preventive medicine, and physiologic chemistry.

Volume II. *Surgery:* 284 pages are devoted to general surgery, under the editorial management of W. W. Keen and J. C. Da Costa. Appendicitis and the best method of curing hernia are still matters of active discussion. The nineteen pages devoted to anesthetics show that this subject is by no means settled. The lengthy chapter on obstetrics opens with an abstract of MacVei's scholarly discussion of Mother *vs.* Child. The editors announce their views as follows: "When the difficulty resolves itself into the sacrifice of one life or the other, the fetal existence must not be considered. For humanitarian and medico-legal reasons, the maternal life must be saved if this be possible."

The remaining portions of the work deal with orthopedic surgery, ophthalmology, otology, diseases of the larynx, and anatomy.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D. Vol. IV, December, 1900. Philadelphia and New York: Lea Brothers & Co. 1900.

The first of the collected articles is that upon the stomach, by Max Einhorn. It is an exhaustive review of the literature of the past year, and shows that the work upon diseases of the stomach is advancing at a rapid rate. Not only have we a clinical study, but the anatomy and position of the organ have been studied anew.

Genito-urinary diseases and syphilis are discussed by W. T. Belfield. Attention is called especially to the large number of communications dealing with the systemic infections by the gonococcus. The opinion is advanced that in tuberculosis of the kidney, nephrectomy is indicated.

J. C. Bloodgood, in discussing general surgery, speaks of cocainization of the large nerve trunks in the prevention of shock. This is a further discussion of Crile's work which was reviewed in the December, 1899, issue of Progressive Medicine. The examination of the blood in traumatic shock is considered, but the author postpones a discussion of leucocytosis until December, 1901. Gelatin as a hemostatic, both locally and generally, is strongly supported in the recent literature. The subcutaneous, rectal, and intravenous transfusion of normal salt solution receives the extended notice which it deserves.

J. R. Bradford has contributed the article on diseases of the kidney. He begins the discussion with albuminuria, there being several points in connection with this much discussed condition that have not yet been decided. Albumosuria comes in for extensive consideration. The relation of a hypothetical internal secretion of the kidneys to uremia is treated with reference to the recent and extensive literature upon this subject.

A. P. Brubaker furnishes us with a brief account of the advances in general physiology during the year. The experimental work of Professor Loeb on the artificial production of normal larvæ from the unfertilized eggs of the sea-urchin is pronounced the most interesting work of our age, and one worthy the closing years of the nineteenth century.

Henry B. Baker, in discussing hygiene, speaks of the enormous reduction in malarial diseases since 1884 in Michigan. Up to that year it was by far the most frequent cause of illness, furnishing nearly 80 per cent of the total morbidity. In the three years ending with 1899, the percentage of malarial diseases had fallen to 18. This he attributes to the general draining of swamps, marshes, and stagnant pools, and the lessening of collections of surface water and the general employment of mosquito nettings.

E. Q. Thornton brings the volume to a close with a practical therapeutic referendum.

THE AMERICAN TEXT-BOOK OF PHYSIOLOGY. Edited by William H. Howell, Ph.D., M.D. Second Edition, Revised. Volume II. Price, $3.00. Philadelphia: W. B. Saunders & Co. 1901.

Volume II deals with the muscles and nerves, central nervous system, special senses, special muscular mechanisms, and reproduction. Recently we reviewed Volume I. The publication of this work in two volumes was designed to obviate the very cumbersome book which the work made when bound in one volume. Warren P. Lombard discusses general physiology of muscle and nerve. One hundred and seventy pages are devoted to the discussion of irritability, con-

ductibility, contractility, chemistry, and electrical phenomena in muscles and nerves. This chapter forms an exhaustive monograph upon the subject. Henry H. Donaldson contributes the article upon the central nervous system. As a primary postulate he assumes the entity of the nervous system. While its divisions into central, peripheral, sympathetic systems may be convenient, they have no counterpart in its functions. Then follows an exhaustive description of the nerve cell. An interesting section is that dealing with the nutrition of the nerve cell and the changes produced in its protoplasm by prolonged stimulation. The architecture of the central nervous system is lucidly set forth. In discussing sleep, two things are said to appear as highly probable: first, that there is a wide difference in the condition designated as normal sleep; secondly, that normal sleep is the result of several sets of influences which need not necessarily be active in the same degree during each period of sleep. The reactions most depressed during sleep are those which require the full activity of the cerebral cortex for their occurrence; the spinal cord is least affected. Plethysmographic studies show a reaction of the nervous system to stimuli which do not rouse the person.

Henry P. Bowditch discusses the special senses; Warren P. Lombard the physiology of special muscular mechanisms. Frederick S. Lee has prepared the chapter on reproduction. He approaches the subject in a broad philosophical manner, as is shown by the article on heredity, which considers the effects of inheritance, atavism, regeneration, the inheritance of acquired characters, the inheritance of disease, theories of heredity, germ-plasm, variation, Darwin's theory of pangenesis, Weismann's theory of heredity, and the theory of epigenesis. There is a general index of both volumes and a special index for Volume II.

A System of Practical Therapeutics. Edited by Hobart Amory Hare, M.D. Second Edition, Revised and Largely Rewritten. Volume I. Philadelphia and New York: Lea Brothers & Co. 1901.

Those familiar with the first edition of Hare's Practical Therapeutics will welcome this as one of the most important contributions to the literature of medicine of recent times.

H. C. Wood discusses therapeutic methods, in which he pays his respects to empiricism, the doctrine of signatures, and homeopathy. The latter is only two pages in length, and we know of no stronger, though we have read many more lengthy, arguments presenting the fallacies of the homeopathic doctrine. The scientific method is based upon a knowledge of what it is necessary to do in disease; an acquaintance with the powers of the forces at hand, and an application, by the ordinary processes of reasoning, of such forces to the needs of the occasion. This is a most excellent definition of modern therapeutics. The writer admits that some of our therapeutics must still be empirical, but advances in pathology must sooner or later give them a scientific foundation or show their fallacy. There is a most excellent short article on dosage and the combining of drugs. J. P. Pennington contributes the article on prescription writing and the combination of drugs. Some amusing samples of prescriptions are given, a few of which cannot be read because of illegible writing; others are abbreviated in such a way as to admit of a doubt as to the drug which was intended; another, written quite correctly, has eighteen ingredients, beginning with bichloride of mercury and ending with cod-liver oil.

H. B. Baker discusses the scientific basis of practical sanitation and emphasizes that in this department, while cleanliness is of the utmost importance, it should not be forgotten that cleanliness in the ordinary sense is only half the battle in sanitation.

I. B. Yeo discusses in his usual felicitous style nutrition and foods, including the treatment of obesity and leanness. E. M. Hart discusses general exercise, including the general forms of gymnastics and their application.

The rest cure for neurasthenia, electrotherapeutics, hydrotherapy, climate, mineral waters, massage, and disinfection are extensively considered. Among the diseases treated of in this volume are those of the thyroid, chronic rheumatism, and the rheumatoid conditions, diabetes, syphilis, tuberculosis, scrofulosis, scurvy, and the diseases of the blood.

A Text-book on Practical Obstetrics. By E. H. Grandin, M.D., and George M. Jarman, M.D. Third Edition, Revised and Enlarged. Price, $4.00. Philadelphia, New York, and Chicago: The F. A. Davis Company. 1900.

Physical Diagnosis in Obstetrics. By Edward A. Ayers, M.D. Price, $2.00. New York: E. B. Treat & Co. 1901.

The first edition of Grandin and Jarman's work appeared in 1894. This third edition has grown into a much more complete work. There has been added a chapter dealing with the anatomy of the female organs of generation and with embryology. The latter adds very little to a practical obstetrics, as the general anatomy of the part is best left to the text-books on that subject. The practical side of obstetrics affords the only opportunity to commend the work. It is profusely illustrated with half-tone reproductions of photographs, some of which are exceedingly valuable, while others are of little importance. Thus the plate illustrating the position of the hand and patient in manual expression of the placenta, as well as another showing the stethoscope upon the abdominal wall, can scarcely be considered as elucidating much that could not be described in a single sentence. Another full-page illustration shows two large men dressing the umbilical cord of a small infant. We cannot see the cord, but we do observe what is presumably a pledget of cotton held over the umbilical region.

Ayers's work is a reprint of the continued article which has been printed from month to month in *Obstetrics*. In the abstract department of Medicine there have been some references to the articles in question. The treatment of the subject is distinctly clinical, and it will prove especially valuable in maternities where nurses and students are taught. The writer gives an obstetrical history chart. This is followed by the same chart filled out with an actual case. The work is arranged with reference to this chart, so that in taking the history of a patient the student may readily refer to the topic under consideration. It should prove of great value in teaching obstetrics.

Obstetrical and Gynecological Nursing. By Edward P. Davis, A.M., M.D. Price, $1.75. Philadelphia and London: W. B. Saunders & Co. 1901.

In the preface we are told that this work has been written for the training schools of the Jefferson and Philadelphia Hospitals, and from the acknowledgments to the nursing staffs of those institutions it is evident that they had a

good deal to do with its preparation. It is a work very much needed by those nurses who propose caring for lying-in women or after operations upon the pelvic organs.

It opens with a short account of the fetus and the anatomy of pregnancy. Then follows a chapter on the nursing in normal pregnancy, together with an account of some of the simpler conditions which are so common as to scarcely pass for abnormalities, namely, faintness, swelling of the legs, irritability of the bladder, and constipation. Then there is an account of the nursing of some of the commoner complications, such as pernicious vomiting, fecal impaction, and toxemia.

The descriptions of the preparation for labor are fully given, with minute directions as to the preparation of bandages, dressings, binders, the bed, and all the outfit required for a new-born child. The duties of the nurse during labor are minutely described. There is an excellent account of the relation of the nurse to the accidents of labor and to the period immediately following. The lying-in period, including lactation and the treatment of the breasts, is exhaustively discussed, as well as the preparation for obstetric operations. There is a rather lengthy description of the care of infants.

The work closes with a statement of the principles of gynecological nursing. There is an appendix on dietetics and general surgical methods. Everywhere throughout the work the necessity of cleanliness, care, and system is emphasized. It furnishes a valuable addition to the literature of nursing, which is already becoming somewhat specialized. It is especially needed by the obstetrical nurse and in obstetrical operations, because the latter are frequently performed in private houses where the nurse has not the advantages to be obtained in a well equipped hospital.

A Manual of Syphilis and the Venereal Diseases. By James Nevins Hyde, A.M., M.D., and Frank Hugh Montgomery, M.D. Second Edition, Revised and Enlarged. Price, $4.00. Philadelphia: W. B. Saunders. 1900.

In their introduction the authors say the most important of the venereal diseases are syphilis and the several forms of infectious urethritis and the non-syphilitic or soft chancre. The statistics are wanting as to the frequency of these affections, but it is probable that infectious urethritis is the most frequent, soft chancre next, and syphilis in all classes last. Gonorrhea is more strictly speaking a venereal affection, while syphilis occurs with greater frequency from extra-venereal sources. As respects a fatal issue, gonorrhea in its ultimate results upon the deep urethra, bladder, and kidneys probably destroys more lives annually than does syphilis.

In discussing syphilis, we are told that the microorganism in the production of this disease has not yet been demonstrated. There is an exhaustive discussion of the primary syphilitic sore or chancre in all its varieties, including the mixed forms. Then follows a description of the general course of the disease, which varies very much in different individuals, and then follows an exhaustive description of syphilis of the different tissues and organs. This portion of the work is profusely illustrated and contains a number of plates, many of which are taken from the work of Mracek.

There is practically unanimity now as to syphilis and chancroid being distinct diseases, though the varieties of both may be implanted at one moment. The writers utter the warning on the frequency with which true infecting

chancres may be mistaken for chancroids. The clinical evidence against the view that chancroidal ulcerations are due to the simple pus-forming bacilli the writers regard as conclusive. That it is due to a specific bacillus is asserted, but the microorganism described by Ducrey is said to need further investigation.

Under the heading hypochondriasis, the writers discuss the morbid mental states produced by real or fancied venereal disease. This is an excellent and sound discussion of the mental side of the sexual life. We would suggest it to those who have been tinctured with the late pornographic literature on the subject.

In the treatment of gonorrhea, irrigations are recommended, but protargol is spoken of as the most promising agent in its treatment. In referring to protargol an accurate description of Finger's method of using the drug has been omitted. Chronic urethritis is discussed with the fulness which the subject demands. The remainder of the work is taken up with the discussions of the complications following both acute and chronic gonorrhea and the treatment of stricture.

The book is handsomely issued and forms an excellent working manual.

A Practical Treatise of Medical Diagnosis. By J. H. Musser, M.D. Fourth Edition, Revised and Enlarged. Philadelphia and New York: Lea Brothers & Co. 1900.

The third edition of this valuable work has been rapidly exhausted. The publication of the fourth edition has afforded the author an opportunity to bring the work down to date, and in part to rewrite it, as well as to add numerous illustrations. We shall not attempt an extended review, as the book is a very large one containing 1105 pages, and is easily the leading work on medical diagnosis by an American author. The first half of the work is taken up with general diagnosis, and the latter half with the investigation of special organs and regions of the body. General diagnosis is divided into two principal parts, namely, the data obtained by inquiry and that which is obtained by observation. To the first is assigned 58 pages, and to the latter 370. The closing chapters of this section are devoted, one to the blood, and another to morbid processes and their symptomatology.

An examination of the contents shows that it is up to date; the plates with which it is illustrated are well done, many of them being printed upon specially heavy calendered paper. That portion dealing with the diagnosis of disease of special organs and systems is especially complete, notably that dealing with diseases of the nervous system, which is the fullest we have yet seen in a work on general diagnosis. The microscopical examination of the urine is illustrated by a number of excellent drawings showing the urinary sediments, of which a few only are deserving of criticism, notably one from von Jaksch and those from Charles, which are diagrammatic to such a degree as to render them almost valueless for comparison.

Modern Surgery, General and Operative. By John Chalmers Da Costa, M.D. Third Edition, Revised and Enlarged. Price, $5.00. Philadelphia and London: W. B. Saunders & Co. 1900.

In the three editions that have appeared this work has grown from a small manual to a volume of 1117 pages. The author tells us that his aim has been to compress in concise form the chief operations of modern surgery, the work aiming to occupy a middle ground between the cumbrous text-book and the

incomplete but concentrated compend. Obsolete and unessential methods have been excluded, and no attempt has been made to exploit fanciful theories or unprovable hypotheses.

The work begins with a very imperfect description of bacteriology, which rapidly merges into a discussion of chemical antiseptics and germicides. Carbolic acid is spoken of as a valuable germicide in the proportion of one to forty or one to twenty, and the liability of dilute solutions to produce gangrene is referred to. There is no reference to the value of pure carbolic acid followed by alcohol. Formalin and acetanilid, as substitutes for iodoform and the silver salts, are described among the antiseptics.

After this brief introduction, the author passes to the description of the preparations for an operation, in which the distinctions between antisepsis and asepsis are well made. This is followed by an extended discussion of inflammation, in which there is a good deal that is practical, but from a theoretical standpoint it is somewhat behind the times. Then follows a description of wounds, with their healing, pus formation, and abscess. From this on the work is strictly of a special character, dealing with wounds, injuries, and fractures, with especial reference to the technique of surgical operations. Almost everything is illustrated, but the plan employed of using very small plates and printing a number of them on a page makes the details so small as to render them of less value than they otherwise would be. The work throughout emphasizes the practical side of surgery as found in the application of splints, the making of incisions, the tying of sutures, etc. In this respect it fulfils the aim of the author in producing a work that shall be practically useful to the undergraduate and the operating surgeon. It is evident that he has not aimed to produce an exhaustive critical work upon surgery.

A Text-book of the Diseases of Women. By Henry J. Garrigues, A.M., M.D. Third Edition, Thoroughly Revised. Philadelphia: W. B. Saunders & Co. 1900.

This work is more than a mere description of the diseases of women. It is an attempt to give a broad and philosophical foundation to the teaching in this department. The work opens with a too brief description of the embryology of the female genitalia. The author states that it is a *résumé*, and as such will serve to direct the attention of the student to the importance of the subject, as many of the malformations of the genital organs of women cannot be understood without an appreciation of their development.

Following this is a description of the anatomy of the pelvic organs, well illustrated and sufficiently complete to furnish an excellent foundation for the description of the special diseases which are to follow. There is a too brief account of physiology from the standpoint of the generative apparatus. A more extended discussion of puberty and the climacteric would have been of advantage. After a short chapter on etiology in general, there is an exhaustive discussion on examination and treatment in general of diseases of women. Then follows an extended description of the various operations upon the pelvic organs.

The work is written from the standpoint of the operative gynecologist, and there is almost no reference to medicinal or any treatment other than surgical. There is an appendix dealing with sterility, and a brief account of intestinal surgery. The work is well issued by the publishers and is handsomely illustrated.

THE AMERICAN ILLUSTRATED MEDICAL DICTIONARY. By W. A. Newman Dorland, A.M., M.D. Price, $4.00. Philadelphia and London: W. B. Saunders & Co. 1900.

The dictionary of Dorland is built much upon the same plan as the compact medical dictionary brought out by him a couple of years ago. It bids fair to be accepted as one of our standard medical dictionaries, though it is remarkably compact in size. It contains 720 pages, and the size of the volume has been kept within bounds by adopting a very narrow margin and a comparatively thin paper, though the latter is sufficiently firm to be durable. In the preface the author says that it has been his design to furnish a convenient word book, with full definitions and such collateral information as is generally looked for. He has sought a middle course between the large, unwieldy lexicon and the abridged students' dictionary, avoiding the disadvantages of each.

The words to be defined are all printed in very heavy type, the system being to define the noun so far as possible, and after it such qualifying adjectives as have been used in connection with the word. Thus, deltoid crest is defined under crest, along with dental crest, frontal crest, etc. This arrangement is adhered to throughout the book. Undoubtedly it facilitates references, but it brings some singular subjects in relation. Thus, body, which is defined as trunk or animal form, includes among the subject divisions such widely diversified subjects as Highmore's body and amylaceous body. In blindness we have word blindness, soul blindness, sun blindness, object blindness, and color blindness. Unquestionably this is the best arrangement and by far the most compact that could be adopted in a dictionary. It certainly renders it easy of consultation where the plan of the author is understood. The work is accompanied by a number of tables.

PANAMA AND THE SIERRAS. A Doctor's Wander Days. By G. Frank Lydston, M.D. Price, $1.75. Chicago: The Riverton Press. 1900.

The writer has produced a pleasant, sketchy picture of a physician's vacation, adding another to that growing class of books written by members of the profession. The principal scenes are laid in Panama and on the Pacific coast; the former is of the deeper interest, dealing with a quaint and little known people. The book is handsomely illustrated, is interspersed with anecdote, and pervaded throughout with a dry humor which makes it readable as well as being instructive. Written by a physician, it contains much of sociologic interest. That the picturesque fell not upon unappreciative eyes is shown by a description of the phosphorescence of the Pacific off Central America: "The waves seemed mingled with lambent fire, which, dazzling white upon their crests, broke into line after line of varying shades of scintillant red, green, lilac, and blue. As the water was churned up by the ship's bows, the play of beautiful colors spread out and out, fan-wise, for many yards, until they were lost in flickering rosy gleams upon the outermost line of dying waves. Now and again a porpoise leaped out of the sea, the many-colored water dripping from his shining sides, and plunging back into the depths with a resounding splash added to the commotion that was so essential to the play of the beautiful luminous waves. Beneath the water he was a meteor with a trail of showery sparks; when he leaped out of it he scattered color about in a prodigal fashion that would have driven an artist out of his wits."

THE YEAR-BOOK OF THE NOSE, THROAT, AND EAR. Edited by G. P. Head, M.D., and A. H. Andrews, M.D. Price, $2.00. Chicago: The Year-book Publishers. 1901.

This annual is now in its second year. The present volume is an improvement upon the former one, is rather more complete, and forms a fair index of the literature in this department. We speak advisedly of its being an index, for in a majority of instances the abstracts are scarcely even a description of the contents of articles. This extreme condensation is of course necessary to keep the volume within reasonable size, but we think this is a small advantage compared with the value of a good abstract, that would give one a fair idea of the contents of an original article, and that would enable one to say at least whether he wanted to read it in the original or not. The volume has 391 pages, of which about one-third are devoted to the ear and the remainder to the nose and throat. There is an excellent index.

ESSENTIALS OF HISTOLOGY. By Louis Le Roy, B.S., M.D. Price, $1.00. Philadelphia: W. B. Saunders & Co. 1900.

This small volume forms No. 25 of Saunders's Question Compends. Like others of the series, it is arranged in the form of questions and answers. The text proper is retained in the form of a solid chapter, while the questions are added at the close. There is very little that can be said upon a histological text-book as compact as this. It will be found practically useful by students of histology, and will, to a large extent, relieve them of the necessity of taking notes. There is an appendix dealing with the microscopical technique for preparing specimens, such as sectioning, embedding, staining, mounting, etc.

LEADING ARTICLES.

DR. JACOBI'S JUBILEE—MEDICAL TEACHING IN GERMANY HALF A CENTURY AGO.

In celebration of the completion of his fiftieth year as a medical practitioner, Dr. Abraham Jacobi gave a reception to his professional brethren at the Academy of Medicine, New York, on April 5. In the course of the evening Dr. Jacobi exhibited and presented to the Academy the text-books he had used in Germany fifty years ago, at the same time delivering an interesting address on medical education as it was then conducted. At that time, he observed, the study of medicine was not what it is to-day. Least of all was it cosmopolitan; it was thoroughly national. There was an English medicine, a French medicine, a German medicine. France enjoyed a superiority during the first half of the century. Meantime Germany, poor and forlorn, divided in hundreds of political shreds, large and small; tyrannized and robbed by her dukes and bishops and princelings of every caliber; annihilated by Napoleon, whom she finally expelled through the unbounded enthusiasm of what was considered a holy war—Germany evolved a peculiar romantic fanaticism which controlled her literature for a decade, with unfavorable results on science. Then came decennia of brutal political reaction and cruel suppression of every ideal effort, police and military violence, and the dungeons filled up with the flower of the country. Schiller long ago had extolled "freedom, though in chains." Chains indeed were plentiful, and that sort of freedom made Germans transcendentalists. Their method of studying nature was imagination. Even Kant, the mathematical thinker, taught them to construe things *a priori*. Then came Schelling, and it need not be said that a system built on his poetical and metaphysical theories could not but have, when applied, the saddest influence on medicine and the study of nature in general. The books of several decades of that period were absolutely obscure, abstruse, unintelligible, and verbose. That they ever taught anybody was impossible. It was impossible to-day to translate them into any—even the German—language. Inflammation, for instance, in the words of the elder Marcus, was the condition in which the "electrical essence is affected in the dimensions."

The whole literature was full of such nonsense, and full of contempt for the unphilosophical, practical foreigners, for Bright and Laennec.

After a time the Vienna school aroused immense enthusiasm. Nihilism and narrow-minded creeds, nevertheless, were common. As late as 1851, Dietl, professor in Cracow, said: "The physician must be judged according to the amount of his knowledge and not according to the result of his cures; it is the investigator but not the healer that is to be appreciated in the physician. As long as medicine is art, it will not be science. As long as there are successful physicians, so long are there no scientific physicians. Our power is in knowledge, not in deeds." This therapeutic nihilism found its adherents amongst the young and utterly inexperienced. History always repeated itself. To-day we were just emerging from a period when a subordinate branch of etiological research, of the greatest import it was true—he spoke of bacteriology—which like a young Napoleon threatened to fill the whole field of medical science and art, so disordered the monomaniac minds of the young that they saw no medicine, past, present, or future, except in the northern exposure of the laboratory windows or on the wilderness of the table of the dingy laboratory of their own school, in their own city, of their own country. The older and wiser men of half a century ago, while readily accepting and practicing both anatomical and diagnostic teachings, reestablished the belief in the responsibility and the results of the practitioner. Prominent among these was Oppolzer, who said: "Those are greatly mistaken who believe that a modern physician is he who examines a patient most carefully, auscultates and percusses, and is satisfied when the autopsy corresponds with his diagnosis. Such a medical man does not comprehend that the aim of all medical service is the healing of the sick."

Then came a time when the physicians of Germany, ignorant, nebulous, unacquainted with all that had been done in France and with the fact that the Vienna School was only the continuation and evolution of Laennec, looked upon Vienna as the new Mecca and on its teachings as absolutely new discoveries. Never was there amongst the teachable minds such a sudden intellectual revolution. It was a very few years after that the first volume of Virchow's Archives made its appearance, and what it meant for the history of medicine in the second half of the nineteenth century and for all time to come, they all knew. No matter how many errors had been committed since, from that time on there had been no "schools" in scientific medicine. It became clear to all that there could not be parties in medicine any more than in physics, chemistry, astronomy, or mathematics; and that intriguing, blind, or eccentric persons

might be able to blind the ignorant, semi-instructed, or credulous public, but not to influence the quiet, systematic biologic methods of hard-working investigators. Modern medicine was born about the middle of the century; it had been young since, and would always remain so, for its methods were biologic, those of the study of nature such as she was. It had freed itself of every sort of transcendentalism. It could afford to do without metaphysics and creed, and was therefore as tolerant as it was becoming more profound and more independent. The time referred to was one of a general upheaval in science, religion, and politics. When Oppolzer's address arrived in Greifswald, in 1848, one of the students mounted a table, and waving the pamphlet exclaimed, "Here is another revolution, a real declaration of independence!"

Among the older men in the ranks of the reformers were Krukenberg, in Halle, a clear, skeptical, and consistent man, the upholder of the unity of medicine; Romberg, of Berlin, the author of a textbook on diseases of the nervous system; and his own dear old teacher, Friedrich Nasse, of Bonn, who was as learned as he was humane, theoretical and practical, pious and critical, a follower of Mesmer and of Laennec, experimenter and teacher, and as the speaker experienced personally, first a good hater and then a loving protector. Nasse was a disciple of Reil, a moderate follower of Schelling's philosophy, for those times a good physiologist, pathological anatomist, and a thorough clinical teacher. At the same time he was a believer in animal magnetism to such an extent as to try to enthuse his hearers. Once he wanted him (Jacobi) to go to Holland to magnetize a young, hysterical lady, which office he disrespectfully declined. On the other hand he made him inject the subcutaneous tissue of rabbits with putrid material to study its effect. He was the strongest adherent of Laennec, and never tired of drilling his students for hours daily in auscultation and percussion and chemistry. This mixture of many sound and a few unsound theories and tendencies was usual in those days, when hardly any German university was free from the influence of Schelling's philosophy. Among his teachers thus influenced to a certain extent was Moritz Ernst Naumann, who wrote a general pathology in six big volumes, but did not expect his students to know all of them; for he was a kind, humane, and genial man. Another was Weber, the anatomist, who, after having learned that he (Jacobi), a poor boy, was the possessor of his anatomical atlas with life-size pictures, forgave him for having studied anatomy and dissected in other universities. Christian Heinrich Bischoff was the professor of materia medica. One morning with his fellow student

Carl Otto Weber (the great investigator and surgeon of Heidelberg, who died in 1867 of diphtheria contracted by sucking the wound of a tracheotomized child—the patient recovered, the physician died) he paid Bischoff one of the prescribed calls previous to the oral examinations, Weber in his own, he in a borrowed, swallow-tail and silk hat. Weber was Bischoff's nephew, so he addressed him as "uncle." "I am not uncle; I am for you these months der Herr Geheimrath. Your ignorance is not relieved by the honor of your relationship to me." And to him (Jacobi) he said: "My dear sir, what shall I say to you who have insulted me, the honored man of science, in my own lecture room, and told me in the presence of a hundred hearers you would never come again, and marched out? Don't you see that you cannot help being absolutely ignorant, even more so than this other young man?" Nothing was left to them but to beat a hasty retreat, and to learn their professor's unintelligible, preposterous text-book by heart, which they did. There was his diploma, and Bischoff's name was on it.

Harless was the professor of the history of medicine. He told them that they had never attended his lectures. He excused him (Jacobi) on account of his not having been in Bonn more than three semesters, but Weber had no such plea, having had all his eight semesters there. The professor assured them solemnly that he had been the prop of science "die Stütze der Wissenschaft" these fifty years, and he did not see much help for Weber and him; but there was his diploma, and the professor's name was on it. Their surgeon was Karl Wilhelm Wutzer, whose memory should ever be green. He was a splendid anatomist, and a skilful operator. After Jobert de Lamballe he was the most patient and therefore, in spite of clumsy instruments, the most successful operator in vesicovaginal fistulæ. His great experience made him believe in the ubiquity and omnipotence of syphilis, thereby preceding Fournier and Erb. He could still see him scrutinizing them with his piercing but good-natured little eyes, and quietly suggesting, "everybody is a little syphilitic." Wutzer wrote very little. The time when every teacher, would-be teacher, or looking-forward-to-the-near-time-of-being teacher, had to write a text-book had not yet arrived. Their text-book on surgery was therefore Chelius, without any title but "Chelius." He had another teacher of surgery before him who almost never wrote a line, and who won the admiration of all. That was Baum, in Göttingen. He followed Baum there from Greifswald to enjoy his teaching and that of Frerichs, who at that time, with Virchow in Würzburg and Rokitansky in Vienna, was the only man in Germany who taught

pathological anatomy and histology. Baum was a good practical teacher, a fine operator, a lovely sweet character, and learned beyond what they taught to be the legitimate right or destiny of any single man. All his immense library went into the possession of an American, Nicholas Senn. It now forms part of the vast donation in books that singularly gifted and active man presented to the Newberry Library of Chicago. Thus was the distance between two hemispheres and two half-centuries bridged over. Never let it be thought or said that the doings or sayings of an individual man must needs amount to nothing. History, it was true, made men, but there were men who contributed to the making of history.

A few more words on hill-clad, jovial Göttingen. There Jacobi enjoyed the lectures and laboratory exercises of Woehler and his assistant Wiggers. Woehler contributed a great deal to the recognition of the unity of the universe by teaching the identity of inorganic and organic matter. It was he who synthetically constructed urea, and laid the foundation of organic chemistry. His enthusiasm for this quaint little man and his teaching was even greater than that of the other students because of what he had suffered in Greifswald from the fossil, Hornschuch, who had taught him what he thought was zoology and natural history, wanting them to swallow the doctrine that nitrogen and carbon were only compositions of hydrogen and oxygen, and that even hydrogen was not simple, and that there was no reason why all the elements might not be derived from one, as all mankind, white, black, green, and red, came from one Adam. Conrad Heinrich Fuchs was his clinical professor in Göttingen. He wrote a number of learned books, which suffered because of his elaborate display of erudition and the jaw-breaking technical terms he coined; still, his scientific conscience was sound. The other clinician was Conradi, whose best and really good part was his first assistant, Dr. Schrader. The latter percussed and auscultated with them, and made the diagnoses for his superior officer, who was strong on etiology. Conradi would never rest until the patient, worried and weary by his persistent cross-examinations, would reluctantly admit that some time before falling sick he had drunk something cold. Triumphantly the little old, wrinkled man would turn to his students, smile knowingly, and say, "Ja, ja, ein kalter Trunk."

In Göttingen Jacobi also attended the lectures and demonstrations of Langenbeck, the father of Max and the uncle of the famous Bernard Langenbeck. Langenbeck, until Baum came and took surgery, was professor of anatomy, of surgery, and of ophthalmology! That was the period when the bacilli and cocci had the best

of it. He taught and worked before the era of anesthesia, when accuracy and lightning speed were the characteristics of the operator. The story was told of an amputation of the thigh which he performed in the presence of an eminent British guest. When Langenbeck took the knife, the Englishman opened his spectacle case; when he had adjusted his glasses the limb was off. The most brilliant of his Göttingen teachers was Hermann Lotze, philosopher and naturalist, one of the few he had met who gave the lie to the observation that the most eloquent men are seldom successful teachers. Rudolf Wagner was their pathologist and embryologist. In his discussions with Carl Vogt, the German-Swiss zoologist, anthropologist, and revolutionist, in which he displayed his Biblical piety, Wagner was sadly worsted; but his fame would last on account of his actual services.

At Bonn their obstetrician was Hermann Friedrich Kilian. He was a good Lutheran in this, that he loved wine, woman, and song: "Wer nicht liebt weiber, wein, und sang, der bleibt ein narr sein leben lang." He was a jovial story-teller, mostly on obstetrical lines. They all began with the words—"In a cold, dreary, stormy, November night." When he began to look solemn the students would all hum, "In a cold, dreary, stormy November night," and never were they mistaken. Kilian was very human. He thought so much of himself that he could not endure the good repute of others, even of students. When he was told that two candidates for the honor of the doctorate were excellent men and would pass a brilliant examination, he felt he must be of a different opinion and show their worthlessness. So after the oral examination he proclaimed that Weber and Jacobi were failures after all, and he had always known it. But the general wrath excited in University circles by that pronunciamento was too much even for him, and when he came to criticize their examination papers he gave vent to his overjoyed enthusiasm over their alleged excellence. His text-book was learned and practical, and was of great service to the speaker in the many hundreds of five- or ten-dollar cases he attended nearly half a century ago in the tenement houses of New York, not infrequently perched on a wooden stool all night in the company of the parturient woman and the bugs and roaches of her dwelling, waiting for the baby that he had to take, to wash and to dress, for better, for worse.

Among the other medical officers of Bonn were Dr. Schaefer, the first assistant of the surgical clinic, admired and beloved by all on account of his skill and the practical sympathy he showed; Dr. Louis Lehmann, assistant in the obstetrical clinic, who afterwards published a text-book on the spas of Europe; and Dr. Hermann

Weber, now Sir Hermann Weber, of London, the eminent climatologist and consulting authority on subjects connected with mineral springs, climate, tuberculosis, etc.

Among the text-books which Jacobi had not yet mentioned was one by Carl Friedrich Constatt. He was never affected by metaphysical theories. His great handbook was founded on pathological anatomy and chemistry, physical diagnosis, and practical experience. It was therefore the bible of German medicine, until finally Niemeyer, with his lucidity, directness, and beauty of language, and lastly Strümpell, who exhibited the same wonderful qualities, took his place in the esteem of the medical public. It was a great work, and the wonder was that one man could furnish it—so learned, practical, erudite, and of such immense size. It compared favorably with the brilliant cyclopedias that every country has brought forth in the last decades. Another text-book had been of special and more than local service to him, for strapped over his revolting abdomen it protected him against seasickness when he crossed the Atlantic in forty-three days on the good Boston three-master, *Trimountain*, Captain Rea, in September and October, 1853. That trip closed his European life, the last two years of which had been an entire loss to him.

When nearly a year ago Osler praised Jacobi publicly for not having written anything for publication in the seven years following his graduation, he did not know that in nearly two of those seven years (after returning from a short dissipation in the Sleswick-Holstein war of 1850) he never saw a square inch of paper or more than an infinitesimally small pencil which he concealed in his hair. When he saw the light again, the French Republic had been destroyed nearly two years, and the world had changed its shape. But medicine had meanwhile contrived to further evolve the new methods which he had seen raised, and he found himself at home again under the folds of its flag inscribed with the gospel of biological research and practical usefulness. Thus he had something to live for. He rejoiced in the fact that medicine was no longer, would never again be, the victim of a single theory, or the work of an individual man, but the result of ever so many thousands laboring in all countries and languages with the same method for a common aim. That was what kindled the hope and enthusiasm of the forlorn young refugee who, in October, 1853, landed under the shadow of Bunker Hill, firm in his ideals and aims, though the shore was not covered with sick people waiting for his arrival or looking forward to his ministrations, and there was nobody to receive him but the crisp autumn air of a free country.

EDITORIAL COMMENT.

THE REORGANIZATION OF THE AMERICAN MEDICAL ASSOCIATION.

At the last meeting of the British Medical Association, an active propaganda was inaugurated looking to a change in the constitution of that body. Many of the members have become dissatisfied with the governing body which is known as the Council, claiming that the latter has lost sympathy with the rank and file of the association. This was brought to a focus last summer by a proposal to increase the powers of the Council. This failed, and was followed by the appointment of a committee to consider the best means of reorganizing. The association is said to number nearly 17,000 members, but only about two-thirds of these are members of branches. Both those who favored the resolutions conferring greater powers upon the Council and those who opposed them felt that the general meetings of the association were not suitably organized for an expression of the views of the great body of members.

In the last conclusion of the committee, the majority of the members of the American Medical Association will heartily agree. The attempt to govern this great body along the primitive lines of a town meeting has utterly failed. The failure of a parliamentary body composed of from one thousand to two thousand is apparent at every session of the American Medical Association in which business matters are discussed. Upon this point our English brothers seem to be practically agreed.

In the report of the British association's committee it is recommended that a special body be created from the various branches of the association, who shall attend the annual meetings and have their expenses paid. They shall vote upon all matters of a medico-ethical sort, and consider all business excepting that of finance and the editorial management of the *Journal*. The present Council is to be continued, but the number of *ex-officio* members is to be diminished; it is to act as a sort of upper house, the delegates to be created under the new rule acting as a lower house. The Council is to have the power of referendum. The voting power of the delegates is to be regulated by the strength of the division which they represent.

The American Medical Association is sadly in need of a change in the organic law relating to the formation of the governing body.

The method of representation has remained the same since the organization of the association, at a time when the number that commonly met in its annual gatherings was not larger than one of our smaller State medical societies. At present, those State, district, and county societies that are in affiliation with the association are entitled to send one delegate for each ten members upon the rolls. It so happens that the multiplication of special societies, particularly in cities, has resulted in the same man joining several; consequently his name is counted as an individual in each separate organization. The number of delegates to which Chicago, with her numerous special societies, would be entitled would make nearly one-half the local profession who are members of local societies delegates to any meeting if they take out certificates. As a matter of fact, a large number attend without the necessary certificate, as it is almost meaningless. Should they desire to take part in the proceedings and vote on the floor of the convention, there is no difficulty in their doing so, and many do without knowing the rule that those who are delegates alone are entitled to vote. A calling of the roll is such a hopeless task that it has only been attempted once or twice in the last ten years. A method of conducting business in this way would seem ludicrous if it was proposed to initiate it, but long custom has permitted the association to drift along without any special direction. Fortunately the drift has been on correct lines, and the necessity of change has not been forced to the front. Each year, however, the association feels more and more the cumbersome methods which are now used, and the time is ripe for the discussion of important changes.

A few years ago what was known as a business committee was organized, composed of the executive members of each section. This has disposed of much business that formerly came before the general body. The work of the committee has grown in importance, and it is found to be composed for the most part of men who are interested in the scientific work of the association, it being composed of ex-chairmen of the sections and not those interested in the politico-ethical subjects which have formed the principal topics of debate in the general session for many years past. The present delegate system should be abandoned, as it is cumbersome and useless. Its place should be taken by a smaller body, organized somewhat upon the lines of the new committee which is to be formed in the British Medical Association. Such a smaller governing body would represent the body of the profession. It might be composed of a single delegate from each State, his voting power

being based upon the number of members residing in the State. This would create a small, compact body that would be representative of the profession. It could meet at the times of the general session and matters could be referred to it, and it could initiate legislation which was thought to be for the good of the entire association. It need not interfere with the present committee of the sections, which would still have jurisdiction over the conduct of the meetings and scientific work, and it need not interfere in any way with the board of trustees of the *Journal*, who have charge of the finances and the editorial management of the publication. Such a governing body combined with the referendum would unify the association, reduce its constitution and practice to a consistent basis, and further the interests of the association.

HEREDITY AND ENVIRONMENT IN THE PRODUCTION OF THE DEGENERATE.

No modern medical writer has aroused the profession more deeply than Lombroso, who studied the criminal class from a biological standpoint. His observations showed that criminals were not accidents, but were the product of natural conditions. It was to be expected that his extreme views should excite some opposition, but in the main the scientific world has come to accept Lombroso's views, but has attached too much importance to heredity as distinguished from environment. Lombroso, throughout his writings, distinctly states that the criminal is a product of numerous biological conditions — that is, of structural defects, whether hereditary or otherwise — and of adverse social conditions. There has been an immense amount of study directed to the question of heredity and its cause in the production of the degenerate classes, comparatively little attention being given to the question of environment. The two are indissolubly connected, and it will be a very difficult thing to settle, either by statistics or experimental methods, the relative importance of the two factors.

Animals whose period of development is short undergo comparatively rapid alteration by heredity. Pigeons with acquired characteristics may soon have these become hereditary by a process of in-breeding, an experiment easily performed because of the rapid succession of generations. The same is true of the modification of plants and microorganisms. It is evident that the longer the period of development, the greater the influence of environment and the lessened influence of heredity. In man, for example, in whom the

period of development is almost twenty years, the results of environment must be much greater than in animals whose life history is much shorter.

Another factor in the relation of environment and heredity that is not fully considered is that the same heredity, in the majority of instances, means the same environment. The child born of drunken or criminal parents is almost invariably brought up in a degraded environment, which would tend, even without the heredity, to a lower social status. The literature of the subject is singularly barren of studies along these lines. There are a large number of cases in which the effect of heredity is shown in degenerates who had all the advantages of improved environment, but while such cases prove that occasionally heredity is all-important, there are not wanting many recorded instances which show that the effects of environment are of great importance in overcoming the hereditary tendency toward defect.

SPINAL ANALGESIA.

The above term seems to be the preferable one to employ where cocaine is used in the spinal canal. To speak of it as a spinal anesthesia is incorrect, as touch and muscular sensation and possibly the temperature sense do not seem to be much altered; hence the term spinal anesthesia is not, strictly speaking, correct. The term medullary anesthesia which has fallen somewhat into vogue is certainly to be rejected, because it would imply an anesthesia of the spinal cord or injection into the spinal cord, which is certainly not the case, the action being confined to the nerve roots.

Since our last editorial there has been a good deal added to the literature on spinal analgesia, a large number of cases having been reported. The warnings which we then uttered regarding this new procedure and its possibilities for harm seem in the light of what has been said about it to be quite unnecessary. We think it would be possible by a diligent compilation of the statistics to present more than 1000 cases in which this method of analgesia has been employed. In at least one of them well marked symptoms of sepsis followed, probably due to an accidental contamination of the injected fluid; the patient made an early but not uneventful recovery. This case would seem to show that the cerebro-spinal fluid and tissues have considerable capacity to take care of an infection, but we would not advise that any reliance be placed upon this, but rather upon a rigid aseptic surgical technique. The secondary

results of injections, so far as can be gathered from the literature, seem to be *nil*, no cases having been reported which were followed by paralysis or degeneration of the nervous centers.

Comparatively few experiments have been made with other agents than cocaine; the latter, while the most dangerous of all the local analgesics, being persistently used. In the few cases in which eucaine B has been employed the quantity has been too small for effective results, though in the still fewer cases in which an adequate dose was used, quite as perfect analgesia was produced as by the cocaine. We are confident that further experiments with other analgesics, or combinations of them, will result in quite as efficient a solution as one of simple cocaine, and one that will be devoid of the dangerous toxic properties of the latter. Methods of sterilizing cocaine have been discovered which are quite efficient without altering the physiological properties of the drug. The mere extemporaneous solution followed by boiling is certain to alter the drug to such an extent that it becomes quite inefficient. This is overcome by sterilizing the crystals by dry heat and then dissolving in water in flasks that have been previously sterilized. The solution may be further guarded by warming to a certain temperature on several different days, when, if it remains clear, it may be used with some degree of confidence that it is sterile. Several manufacturers have undertaken to prepare the solution in hermetically sealed bulbs, each containing a sufficient quantity for one injection. This is by far the best method that has been devised in using cocaine, and we would advise those who propose employing the method to secure their supply from one who is an acknowledged authority in the preparation of such solutions.

WHY ARE PHYSICIANS SHORT-LIVED?

In the February, 1901, issue of the *Medical Dial*, we have an estimate given of the comparative length of life of medical practitioners and those of other professions. We do not know where the *Dial* gets its figures, but the average length of life for medical practitioners is said to be from 52 to 56 years. Clergymen live ten years longer. The question is asked whether this high death-rate among physicians is not to a large degree preventable. The man whose life-work is to teach others to take care of their health would naturally be presumed to care for his own. Too commonly, however, it is the very opposite. Exposure to infectious diseases cannot be avoided, but the risks may be greatly lessened by proper atten-

tion to disinfection and to maintaining a good physical condition. Overwork and broken rest contribute not a little to the high death-rate among physicians, and the latter is often the fault of the physician himself. While a certain amount of overwork is unavoidable, it is usually possible to avoid making many night visits, and it is an unwise policy to make a night journey in order that the office hours may not be broken into.

"Young physicians are sometimes given to boasting of the way in which they abuse themselves by overwork. How often we meet the man who has not had his clothes off for two weeks, or who has not had any sleep for ten nights, excepting what he could get in his buggy. Very brave and self-denying; but would it not be better for the doctor and his patients if he undressed once in a while and took a bath; if when pressed with work he turned over an unimportant case to a less popular physician, while he took a much needed night's sleep in a comfortable bed? Worry, overwork, and bodily suffering often lead to the use of stimulants or narcotics, which too often cut short a bright and promising career."

"VALVES" OF THE RECTUM.

Much useless discussion has been indulged in in reference to the so-called valves of the rectum. The polemics have been in the nature of special pleas in which there has seemingly been more effort to confound and refute opponents than to arrive at the truth. That requisite of most scientific discussions, to first eliminate that upon which all parties agreed, and then to come down to an exact definition of terms used, would clear away much of the confusion. As to whether the rectum has valves or not depends very much upon the definition given the word valve. The Latin *valva* meant simply a leaf or fold, and this was evidently the way the word was used by the old anatomists when they named the *valvulæ conniventes* of the intestine. A much narrower definition is that given by Webster when he says that a valve in an anatomical sense is "the membranous partition or fold within the cavity of a vessel which opens to allow the passage of a fluid in one direction, and shuts to prevent its regurgitation." In the latter sense it is probable that it is only a very exceptional conformation of the rectum that would enable us to say that it contained valves.

Atmospheric dilatation of the rectum shows conclusively that there are certain folds of the mucous membrane that do not straighten out when the gut is distended. This method of exam-

ination has only recently been applied in the study of the lower part of the large intestine, and its slow adoption is a singular commentary on the conservatism of our profession. It is almost forty years since the successful application of the principle of atmospheric dilatation was employed by Sims in the study of the vagina and pelvic organs of women. The same principle applied in the rectum allows it to be distended with atmospheric air, its folds are easily separated, and usually a good view of the entire circumference of the rectum can be obtained as high as the sigmoid, and even beyond this if a simple tube be employed. A complicated apparatus for distending is quite useless, as in cases in which the structures are approximately normal atmospheric dilatation is sufficient, and if they are not, then an amount of pressure sufficient to dilate them would probably be dangerous.

Exposed in this way, the rectal mucous membrane is found not to be a smooth, even surface, but to present certain folds of varying development in different individuals. In some they scarcely amount to more than ridges upon the surface, and in others to folds extending a sufficient distance into the lumen of the gut to constitute veritable valves. They vary in number as well as location. Mere redundancy of the mucous membrane, which is frequently present, and which furnishes folds resembling the rectal valves, is entirely obliterated by atmospheric distention, so that with the patient in the proper position, which in every case must be an exaggerated knee-chest position, with the abdomen free from all constriction, these folds entirely disappear, with the exception of those which are due to a true anatomical formation by which the inner coats of the intestine are caused to project as a fold into its lumen and which have been termed valves.

CARE OF THE TEETH.

In no department of medical science has bacteriology made greater progress than in relation to disorders of the teeth. The older theories that made necrosis dependent upon some nutritional disturbances have been so far relegated to the background that most of such constitutional states are at present regarded as merely predisposing causes, locally furnishing that diminished resistance which gives a fruitful soil. Hygiene of the teeth, like that of the body in general, is comprehended in the word cleanliness, and additional importance is given to the matter by the great frequency of so-called pyorrhea alveolaris, or what is better known as gingivitis.

This is an infection that begins at the margin of the gums, usually with the ordinary pus-forming bacteria, which gradually separates the gum from the tooth and loosens it by extension of the inflammation to the alveolar process. Once deeply beneath the gum, such an infection is almost impossible to eliminate, but the proper care of the teeth will prevent accumulation of decomposing food and secretions at the junction of the gum and the teeth, which furnishes a proper culture medium for microorganisms.

In the care of the teeth we are sometimes told that brushing them once a day is sufficient, and that too frequent brushing destroys the enamel. The truth is that for one tooth lost because of the too frequent and too vigorous use of the brush, thousands are sacrificed because it is used too little. A common error in using the brush is to rub the teeth from before backward, thus bringing the brush in contact with only the outer surface of the teeth. A rotary, or better an up and down, movement is necessary to bring the ends of the bristles between the teeth, which is the situation in which microorganisms lodge. A brush is sometimes used that is too stiff, in this way not readily penetrating between the teeth; or, on the contrary, one may be employed that is so soft as to have very little stimulating effect upon the gums. In a brush that has been used too long the bristles become rounded and smooth, having little effect in either mechanically removing accumulations from the teeth or in stimulating the gums.

There should be a thorough cleansing of the teeth at least twice a day, and it would be better if the tooth-brush was used after each meal. Abrasives are never necessary except in removing accumulations from the teeth, and these will never form if the tooth-brush is used with sufficient frequency. Dentifrices are usually unnecessary. A simple antiseptic solution, such as sodium borate combined with some of the essential oils, is all that is needed.

The hygiene of the mouth has not been taught as earnestly nor as enthusiastically as it should be, notwithstanding the fact that the general health is largely dependent upon the digestion and the latter upon the ability to masticate food. In addition, the suppurative condition which we have spoken of as gingivitis undoubtedly leads to direct infection of the alimentary tract, and numerous cases are on record in which grave digestive disturbances were at once relieved by the cure of suppurative inflammations of the gums.

ABSTRACTS.

MEDICINE.

The Tonometer in Determining Arterial Tension.—

Henry L. K. Shaw, in the *Medical News* of March 9, 1901, says that Gaertner's tonometer is the simplest and best means of measuring blood-pressure that is clinically available. In April, 1900, we published a description (MEDICINE, vol. vi, p. 310) of the instrument. It consists of a pneumatic ring, mercury manometer, rubber ball, and rubber tube. The ring is made of metal and large enough to slip easily over one of the phalanges. The inner surface of the ring is covered with a thin rubber membrane and is air-tight. The pressure in the apparatus is registered by the column of mercury. In applying the register, the finger is rendered anemic, then the instrument is applied with sufficient pressure to maintain a collapsed condition of the vessels. The pressure is gradually reduced until the instant the finger becomes congested, when the pressure is read, this giving the amount of arterial pressure.

The tonometer is not above criticism, nor is it perfect, but it is by far the simplest and most satisfactory instrument for the estimation of blood-pressure yet devised. The difficulty in deciding the tension of a pulse is well known, and as long as digital examinations are made alone, no exact deductions are possible. Blood-pressure is dependent on three factors—the amount of cardiac power, the amount of peripheral resistance, and the amount of blood in the vessels. It has been claimed that Gaertner's instrument gave the maximum blood-pressure, but this has been disproven by one of Gaertner's experiments. Dogs having white tails had this appendage shaved so that the ring could be fitted over them just as it is on the human finger. The carotids of the animals were then exposed and connected with a manometer, readings being made by different persons simultaneously. In each case it was found that the tonometer represented the middle pressure in the artery.

A considerable number of articles have been written in the past giving observations with the tonometer. Jellinek found that the normal pressure in 532 soldiers was between 100 and 160 millimeters. In one-quarter of the cases the pressure in the right hand was greater than that in the left. The effect of bathing, exercise, and food was investigated, but no satisfactory results were obtained. In narcosis

there is a fall in the arterial pressure. Variations due to psychic influences are marked in nervous and hysterical patients. Pilcz has found high tension in melancholia, while in mania it was low. In cases of circular insanity, during the depressed stage there was an average of 60 millimeters, while in a period of melancholia it rose to 160 millimeters. In the early stages of general paralysis the tension was normal, but it gradually sank as the disease progressed, registering from 50 to 80 millimeters in the terminal stage. Heim found high tension in neurasthenia. Neisser has found the estimation of the blood-pressure to be of value in the prognosis and treatment of acute affections. Fraenkel has described a case of albuminuria in which a digital examination of the pulse showed no increase in tension, and where a marked increase was revealed by the tonometer. Muscular work increases the blood-pressure, which falls after the work ceases. Time of day and respiration influence the arterial tension, and there is said to be a fall during sleep. A number of experiments have been made to discover the lowest point compatible with life. In several cases of operations where the tonometer registered below sixty millimeters there was normal pulse frequency and respiration, but they ended fatally from six to twelve days after operation. Sixty millimeters seems to be the lowest limit compatible with life, and the fall in pressure seems to be of greater prognostic value than the respiration or pulse.

The Malarial Mosquito on the Susquehanna.—

Much will be learned during the next few years regarding the habits and distribution of the malarial mosquito. H. B. Bashore, in the *Medical Record* of February 2, 1901, has made some studies upon the distribution of Anopheles in a suburb of Harrisburg. During the past summer the conditions in this place were popularly believed to be favorable to malarial development, namely, a low, stagnant river, and considerable hot weather. The writer says that the recognition of the Anopheles is very easy with the aid of a small pocket lens, the characteristic points being the spotted wings, long feelers, and the resting position. The latter alone is sufficient, with a little practice, to identify the species. During the extremely hot weather, from August 14 to August 22, mosquitoes were very plentiful, and became a decided nuisance, even in houses which were properly screened. During this period he captured and examined 540 specimens, of which 400 were Culex and only 140 Anopheles. Only 25 per cent were malarial. During this time there was very little malarial fever. After the great storm in September, a cold

wave spread over the region, with temperature in the morning between 50° and 60°. During this time, although mosquitoes were very rare, he captured seventy-eight, of which fifty-six were malarial, or 74 per cent of the entire number captured. At this time there was an unusual outbreak of intermittent fever. He personally saw twenty cases in ten days, most of them tertian, requiring large doses of quinine, and showing a marked tendency to relapse later on. Late in September, and at the beginning of October, the Anopheles occurred in a ratio of 50 per cent, and during this time there was a diminution in the number of cases of fever. In the month of October, after several severe frosts, there was some mild weather, and during this time only 16 per cent of the mosquitoes belonged to the family of Anopheles. With this diminution, intermittent fever seemed to have vanished.

Chronic Jaundice with Gastroptosis.—

Recent literature contains frequent mention of the association of prolapse of the abdominal organs with disturbance of the gall-bladder. J. D. Steele, in the *University Medical Magazine* for February, 1901, gives the history of a woman 39 years of age, unmarried, and by occupation a mill-hand. In August, 1897, after some indiscretion in diet, she had very severe pains over the whole right half of the abdomen. The attack was accompanied by severe vomiting, pain, and prostration. The pain was sharp and gradually extended over the whole abdomen. There was much tenderness on pressure. The acute symptoms gradually subsided, but she has not been well since, there being occasional pain in the epigastrium, diarrhea, and fulness after eating. In October, 1898, she became worse and had severe vomiting after a period of two months. At this time jaundice developed and she lost twenty-five pounds in weight. The family history was fair, and the previous history of the patient showed comparatively good health up to August, 1897.

On admission to the hospital the urine was found to contain bile, but otherwise little of interest. The abdominal walls were relaxed and the epigastrium flattened. The liver was not enlarged. The kidneys occupied their normal position. An approximately normal blood-count was found, but with a lowered percentage of hemoglobin. On inflation of the stomach, a considerable amount of gastroptosis was discovered. The upper border of the stomach was at the umbilicus, and the lower border half-way between the umbilicus and the tubes. A nearly normal gastric juice was removed by the stomach-tube. Inflation of the colon showed that it crossed the

abdomen at the level of the umbilicus. A belt and pad were fitted which brought the stomach to its normal position. Under this treatment the gastric disturbance disappeared quickly; incidentally the jaundice began to slowly disappear.

A Family Form of Pernicious Anemia.—

Robert T. Edes, in a letter to the *Medical Record* of February 23, 1901, calls attention to an article on pernicious anemia in its relation to heredity, which we abstracted in a recent number of MEDICINE. Dr. Dana said that the different tissues of the body are endowed with a certain vitality which carries them along to a point where they begin to degenerate. This accounts for the family forms of nervous disease, which have been most studied, and also for other family types of degeneration in the muscular and osseous system. He referred to the fact that in pernicious anemia there is probably the same underlying teratological defect.

Edes's attention was called to this view, and he reports a case of a woman in middle life who came to him with a history of having lost color for three or four years. She had been taking a fair amount of food, mostly milk, seldom vomiting, but the quantity had been growing gradually less. The symptoms were those of an idiopathic anemia. A blood examination was not made, as he was asked to see the patient largely with a view of suggesting some improvement in the diet and not that the diagnosis was in doubt, as a brother and sister of the patient had been affected in the same manner. The brother died six years before in the same way and at about the same age. An older sister also had a primary anemia, but recovered. At the end of two years she had a recurrence, which lasted something more than a year, from which she finally recovered. It is believed that the father had the same trouble, but no definite medical information could be obtained of his case. The brother's case began long before blood examinations were made to assist in the diagnosis of pernicious anemia, but a post-mortem revealed no lesion excepting the excessive anemia.

Rapid Cultivation and Differential Stain for the Diphtheria Bacillus.—

A. L. Goodman, in the *Medical Record* of February 16, 1901, says that the modification of Neisser's stain, published by Concetti, is an improvement over other methods. Excellent results have been obtained with it in the Pediatric Laboratory in Rome. With this method it is possible to arrive at a very early bacteriological diagnosis. The method is as follows: A sterilized glass or iron rod has

twisted upon its end a small piece of absorbent cotton, impregnated with glucose glycerinated agar-agar. The rods are kept in sterilized test-tubes. When a culture is to be made, it is removed, the affected part swabbed with the end containing the culture medium, and the rod at once replaced in the tube. It is then placed in a thermostat and kept at a temperature of 36° to 37° C. In four or five hours' time there will have been sufficient growth to make a smear. The latter is stained with a methylene blue solution consisting of methylene blue 1 gramme, alcohol 20 cubic centimeters, distilled water 450 grammes, acetic acid 5 grammes. This solution should remain on the slide not more than two or three seconds. The spread is then washed with water, after which it has an intense blue color. A counterstain is employed consisting of two grammes of vesuvin in 1000 grammes of water. This solution is heated, and filtered while still warm. The specimen should be exposed to the action of the vesuvin from fifteen to twenty seconds and then washed in water. It displaces the methylene blue. If no Loeffler bacilli are present, the gross appearance of the smear is brown. The presence of the true or pseudobacilli gives a mixed blue and brown color. Under the microscope the pseudobacilli are stained brown in their entirety. The true bacilli have a brown stain, but the ends of the bacilli present the characteristic blue points, which is the chief differential test.

Parenchymatous Glossitis.—

C. Oldfield reported to the Leeds and West Riding Medico-Chirurgical Society (*The Lancet*, Dec. 22, 1900) three cases of acute inflammation of the tongue. One of these patients had complained of sore throat six weeks before coming under observation. When first seen there was no enlargement of the tongue, but on the third day the organ began to swell, there was fulness in the submaxillary region, pain, and a copious secretion of mucus in the nose. Often liquids could not be swallowed. On the sixth day a partial anesthesia was induced, and the mouth forced open and an incision made in the tongue. This gave exit to a considerable quantity of dirty, watery pus having an offensive odor. Recovery was rapid.

The second case is that of a man aged 40. The illness began with a rigor during the night, and when the patient was seen on the following morning he had great pain in the throat and was unable to swallow. During the day the tongue began to swell, and on the third day it was very large, forcing open the mouth and projecting beyond the teeth. During the night the swelling of the

tongue went down, and on the fourth day it was of about its natural size. There had been no escape of pus.

The third case was that of a man aged 31 years who had an acute tonsillitis seven days before. Rigor marked the beginning of the illness, and in the course of five hours the tongue swelled so as to completely fill the mouth and prevent swallowing. On the tip of the tongue a small ulcer was observed, brought on by the habit of placing tacks in his mouth. On the third day the swelling disappeared almost as quickly as it had appeared, no escape of pus being observed.

The Staining of Blood Films.—

W. C. C. Pakes, in the *Clinical Journal* of January 23, 1901, calls attention to the difficulties frequently met with by the practitioner in obtaining stained films of blood. In using solutions of eosin and methylene blue the red disks are stained well with the eosin, but the nuclei of the cells do not take the blue. The following technique will invariably give good results: The films are made in the ordinary way and fixed for from six to twenty-four hours in equal parts of alcohol and ether. After fixation, the film is washed in water and treated with an alcoholic eosin solution for thirty seconds and then washed in water. Instead of staining for from three to five minutes, he uses the following method: Filter a little watery solution of methylene blue into a watch-glass and heat it over a flame until it just boils. Remove the film and at once immerse the cover-slip in the hot fluid for from ten to twenty seconds. Wash in water, dry, and mount in Canada balsam. On examining a film prepared in this way, it will be seen that the red disks have retained their full amount of eosin, and the nuclei of the cells, as well as the malarial parasite, if present, are colored a deep blue—much deeper in tint than that obtained where the cold method is used.

Treatment of Pulmonary Hemorrhage.—

W. J. Robinson, in *Merck's Archives* for January, 1901, says it is important to relieve the intense anxiety of the patient, as the laity commonly believe that an early fatal termination is likely after pulmonary hemorrhage. The patient should be put in the recumbent position and the clothing loosened or removed. A one-fourth grain of morphine, to which is added a small quantity of atropine, should be injected hypodermically. A teaspoonful of common salt may be given dry on the tongue, or twenty to sixty minims of sulphuric acid diluted with a small quantity of water. In addition, an ice-bag

is placed on the chest. If the above measures fail to check the hemorrhage, then for a short time cords should be tied around the extremities, not too tight, but sufficient to prevent a return of the venous blood. Do not under any circumstances give ergot or astringents. Ergot raises the blood-pressure and hence tends to lessen thrombosis in the eroded vessels. Local astringents are injurious because of their irritating effect upon the stomach, and they can have no possible effect upon the pulmonary circulation. The diet should be scanty, yet nutritious, and absolute mental and physical rest should be insisted upon. The internal administration of gelatin is an excellent prophylactic against recurrence of the hemorrhage. Mild degrees of collapse may be safely left without treatment, but in case it is severe, nitroglycerin or strychnine may be used. The patient should be surrounded by hot bottles, and if necessary hot saline solutions should be injected into the rectum.

Urinary Hyperacidity.—

Thomas R. Brown, in the *Philadelphia Medical Journal* of March 2, 1901, says that symptoms of cystitis are sometimes found in cases in which there is no vesical infection. This is sometimes noted after the administration of certain drugs and occasionally in the course of fevers, and may be due to noxious substances eliminated, or perhaps to increased concentration of the urine. There are a group of cases presenting hyperacidity. His attention was first directed to this condition in making a bacteriological study of infections of the bladder. He found certain cases in which there was a slight burning on micturition associated with a few pus or red blood cells in the urine. A study of these cases showed that there was no infection.

In these cases he noted that there was a very marked acid reaction of the urine, and to determine the total acidity he titrated ten cubic centimeters of the freshly drawn urine with a one-tenth normal solution of sodium hydroxide, using phenol-phthalein as an indicator. This is not quite so accurate as the estimation of the acid phosphates of the urine, but it is sufficiently so for practical purposes. In many of the cases of hyperacidity in which a cystoscopic examination was made there was found a marked injection at the base of the bladder. For purposes of comparison, the normal acidity of the urine is stated as ten. The results in nine cases in which there was hyperacidity gave varying degrees, from two to five times the normal, the severity of the symptoms in each case depending upon the degree of acidity.

Selenium Compounds in the English Beer-poisoning Epidemic.—

F. W. Tunnicliffe and Otto Rosenheim, in *The Lancet* of February 2, 1901, have investigated the arsenical beers which have caused the severe epidemic of arsenical neuritis in several English cities. They were struck with the comparatively small quantities of arsenic ingested, which seemed inadequate to produce grave results. It was thought that this might be due to errors in the analysis, but the latter is believed to understate the quantity of arsenic. The theory is that possibly the fermentation to which the beer has been subjected may have produced those gaseous compounds of arsenic which are known to be especially poisonous, but as these have a distinct odor it is probable that they would be detected in the manufacture. They have accordingly directed their attention to some of the other impurities of sulphuric acid. Selenium occurs associated with arsenic in nearly all pyrites from which sulphuric acid is prepared. They have found that colorless, commercially purified sulphuric acid contains selenium. It is stated that the properties of selenium render it practically certain that they would pass over with the arsenic into the sugar manufactured with impure sulphuric acid. Selenium compounds are highly poisonous, and in their physiological behavior practically identical with arsenic. They believe that selenium compounds have played a definite rôle in the recent poisoning with beer, but subservient to that of arsenic. The presence of this poison would explain the many anomalous cases in which the amount of arsenic ingested was minute.

Clinical Varieties of Bright's Disease.—

J. R. Bradford, in *The Lancet* of January 5, 1901, concludes a clinical lecture on Bright's disease, as follows: (1) We may recognize two forms of acute Bright's disease: one, characterized not only by the well known urinary changes, but also by the presence of dropsy; the other where dropsy is absent and where the distinction between acute Bright's disease and mild congestion of the kidney is by no means easy. (2) There are at least two forms of chronic Bright's disease: one where the patient secretes a scanty, highly colored albuminous urine, and becomes markedly dropsical, the course of the malady being chronic and death occurring usually, either from the mere water-logging of the tissues, or from the development of the inflammatory complications, or from chronic or subacute uremia. The second form of chronic Bright's disease is one where the symptoms often run a latent course for an unknown period, and where the patient ultimately seeks advice on account of

very vague symptoms of ill-health, such as wasting, loss of strength, circulatory disturbances, and even where he does not seek advice until the onset of an acute or fatal uremia. In this form of the disease dropsy is absent, the urine is abundant and pale, and it contains a considerable quantity of albumin. Not only may chronic Bright's disease be chronic from the outset, but the two varieties of chronic Bright's disease are not necessarily different stages in one and the same process, but represent different effects of the same morbid process.

Stereoagnosis and Allied Conditions.—

C. W. Burr, in the *American Journal of the Medical Sciences* for March, 1901, reports the case of a young man who had received a fracture of the right parietal bone which had caused a temporary left-sided hemiplegia and hemianesthesia. On recovering he found he could not recognize objects with the left hand. This continued after all other signs of the paralysis had disappeared. Two other cases, one of brain tumor and one of hemiplegia, also presented the same inability. In concluding, the writer says the ability to recognize objects by handling depends upon the integrity of the afferent nerves, the cortical sensory area, and the cortical perceptive area. Inability to recognize objects due to disease of the sensory nerves or of the sensory tracts in the cord, medulla, and pons may be at once dismissed, as it is due to anesthesia of one or more types. There is a distinct area of the cortex in which sensations produced by handling objects are grouped together to form tactile sensory images. This tactile perception is in the parietal lobe. It is not the same thing as the sensory area, though it may be located in the boundaries of the latter. The term stereoagnosis should be limited to cases in which the inability to recognize objects is due to some failure of sensation caused by brain disease, either in the cortex or in the fibers going to it.

A New Blood Stain.—

A. R. Rosenberger, in the *Philadelphia Medical Journal* of March 2, 1901, recommends the following stain, which is said to work well upon blood fixed either with heat or with alcohol and ether: Saturated aqueous solution of methylene blue, 50 cubic centimeters; saturated aqueous solution of phloxin, 20 cubic centimeters; alcohol (95-per-cent), 30 cubic centimeters; distilled water, 60 cubic centimeters. The stain is allowed to remain from one to four minutes and is then washed freely in water, dried, and mounted in balsam.

The nuclei of the white cells are stained either a deep or light blue, and the red cells a pinkish color or a reddish-green. In the finely granular oxyphiles the nuclei stain darkly, the granules being a dull pinkish color or a bright red, denoting that they are acidophilic and not always neutrophilic. The nuclei of the lymphocytes take the stain deeply. The myelocytes take a very faint blue stain. The stain is not only useful for blood cells, but is valuable in demonstrating any variety of the malarial parasite; the estivo-autumnal and the quartan types stain especially well. The malarial parasite is always stained a bluish-green, and the pigment granules show decidedly upon this background.

Spongifying of the Labyrinth.—

J. Holinger, in the *Laryngoscope* for January, 1901, says that the term sclerosis should not be applied to chronic progressive deafness, as it is not true pathologically. Spongifying of the labyrinth is a well defined disease clinically and pathologically, and a diagnosis can be made at a comparatively early stage by the application of three tests. Changes in the ears which point to this condition are: (*a*) Short or negative Rinné; (*b*) increase of hearing of low sounds by bone conduction; (*c*) several octaves of the lowest sounds cannot be heard by air conduction. The prognosis of spongifying of the labyrinth is good as to life, but bad as to the hearing. Treatment should be given very judiciously, if at all, as some patients have more impairment of hearing who are treated than those for whom nothing is done.

Measuring the Intensity of the Heart Tones.—

Albert Abrams, in the *New York Medical Journal* of February 16, 1901, describes a stethoscope constructed on the disk-valve principle. It weighs about two ounces and is composed wholly of hard rubber. It is constructed so as to interpose a solid substance between the ears and the chest wall which shuts off the sound. The opening in the barrel of the stethoscope may be increased or diminished at pleasure, and the point at which a given heart sound disappears is read from the scale. He is of the opinion that it will prove of value in determining the relative loudness of breath sounds from the pulmonary apices. At present the author is employed in an attempt to establish a distinction between cardiovalvular and valve tones. In estimating the sufficiency of the cardiac muscle, the greatest reliance is to be placed on the early disappearance of the first tones from the pulmonic and aortic areas.

A Study of the Causes and Treatment of Osteomalacia.—

C. Jedzik, in the *Wiener Klinische Rundschau* of March 3, 1901, has studied fifteen cases of this disease, especially with reference to treatment. He says that pseudomalacia comes from irregular eating and the use of improper food, especially among people who for generations have lived among unhealthy surroundings with an insufficient diet. The direct exciting causes are hemorrhage, pregnancy, and lactation. Rickets and osteomalacia have similar causes, but in the latter dyspeptic symptoms and obstinate constipation predominate. In its treatment bicarbonate of sodium should be given in large doses, and the conditions surrounding the patient and the diet should be improved.

Yellow Fever a Mosquito-borne Disease.—

Charles Finlay, in the *Medical Record* of February 9, 1901, gives a summary of the progress made in the nineteenth century in the study of yellow fever. He refers to his views of more than twenty years since, as to the probability of its being transmitted by mosquitoes, a fact that has now been proven by Drs. Reed, Carrol, and Agramonte. They have shown with almost mathematical precision that the *Culex fasciatus* transmits the disease from patient to patient, and that when the contaminated mosquito is excluded, the yellow fever infection is intransmissible.

SURGERY.

Diagnosis and Treatment of Abscess in Connection with the Vermiform Appendix.—

Rutherford Morrison, in *The Lancet* of February 23, 1901, says there is one point upon which authors are agreed in relation to appendicitis, namely, that the presence of pus makes operation imperative. The typical signs of pus formation, rigor, temperature, and redness, or the presence of deep fluctuations, are rarely found. The temperature, low in the morning and high in the evening, followed by night sweats, is one of the most frequent symptoms. All of these signs may be wanting with a large and dangerous abscess, the patient appearing to be convalescent. The essentials in the diagnosis are the history of a sudden severe attack of abdominal pain, gradually becoming localized in the right iliac fossa, attended by vomiting, fever, and followed by an abdominal illness; if to these are added the discovery of a definite tender tumor with rigidity of the abdominal

muscles in the neighborhood of the appendix, the diagnosis of appendicular abscess is almost a certainty.

For surgical purposes the anatomical positions of the appendix may be described as: (1) On the inner side of the cæcum pointing upward into the area occupied by the small intestine; (2) on the outer side of the cæcum in the groove on the outer side of the ascending colon; (3) below and internal to the cæcum and pointing into the pelvis; (4) behind the cæcum and in the subcæcal fossa; (5) behind the ascending colon resting upon the peritoneum and fascia covering the psoas muscle. An appendix in this situation surrounded by a localized collection of pus produces characteristic physical signs, by a careful study of which, in the great majority of cases, the position of the appendix and the relations of the abscess can be correctly foretold. Such may seem like a needless refinement in diagnosis, but it will be found to be practically valuable in guiding the operative treatment.

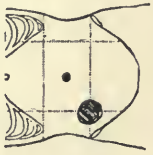
Fig. 5.

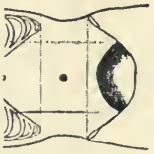
Fig. 4.

Fig. 3.

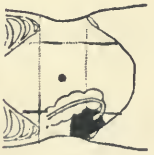
Fig. 2.

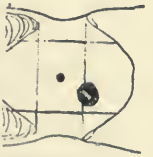
Fig. 1.

1. The position of appendicular abscess inside of the cæcum is indicated in the diagram (Fig. 1). The walls of the abscess are composed of coils of small intestine, and the roof of omentum. Such an abscess is fairly movable and may sometimes be taken for a small ovarian cyst with a twisted pedicle.

2. In appendicular abscess on the outer side of the cæcum the swelling will be found to commence in the right iliac fossa above the anterior superior spine; as it enlarges, it hugs the iliac crest (Fig. 2). It is quite fixed, and when the abscess is large it makes a definite, palpable lumbar swelling. If the appendix in that position happens to be long, it reaches upward into the hepatic pouch, and when inflamed it frequently ruptures at the top and causes a swelling which is frequently mistaken for a liver or kidney tumor (Fig. 3).

3. If the inflamed appendix hangs over into the pelvis, the resulting abscess may be found as a limited swelling fixed to the pelvic brim, and most readily discovered by bimanual examination, one hand on the abdomen and a finger in the rectum;

or the pus may fill the pelvis in varying degrees till the rectovesical or rectouterine pouch comes to resemble a distended bladder or an ovarian cyst (Fig. 4).

4. An abscess in the subcæcal pouch pushes forward the cæcum, which may be felt gurgling over it, or giving a resonant note on light percussion. This abscess is usually small, slightly movable from side to side, and lies deep in the iliac fossa. It may be confounded with the more chronic and less tender tuberculous or malignant tumor in the ileocæcal region (Fig. 5).

5. Appendicular abscess behind the ascending colon and lying on the psoas muscle produces a lumbar tumor and flexion of the corresponding thigh (Fig. 6).

FIG. 6.

The difficulty of diagnosis in pelvic accumulations from ordinary pelvic growths is great and sometimes impossible. It must not be forgotten that sometimes pelvic growths and appendicular abscess are associated. Many cases recover if left alone, the pus discharging into the intestine. In these cases the quantity discharged from the bowel may be so great as to admit of its ready recognition, while in others it is so slight that even the most careful observation will fail to detect it in the stools. The reason that the discharge through the abdominal walls is considered to be the ordinary termination of an appendicular abscess is due to the fact that all of these cases are recognized, while in those cases in which the discharge is into the intestine, many escape record. When an abscess has been recognized and it is followed by a sudden return of severe pain, with collapse, it indicates that the abscess has ruptured into the general peritoneal cavity, and it will be followed by a general peritonitis.

In the treatment we should endeavor to get rid of the pus. If it

can be liberated by the rectum in the male or by the vagina in the female, these should be the methods of choice. The one drawback to this method of operating is that the appendix is left, which in a considerable percentage of cases causes further trouble.

An Intestine Holder.—

E. H. Lee, in the *Annals of Surgery* for January, 1901, describes a device for holding the severed ends of the intestine in position in end-to-end anastomosis. The instrument is so constructed as to give the required tension during the introduction of sutures, and when the continuity of the bowel is established the arms fold so that the instrument can be withdrawn through a very small opening.

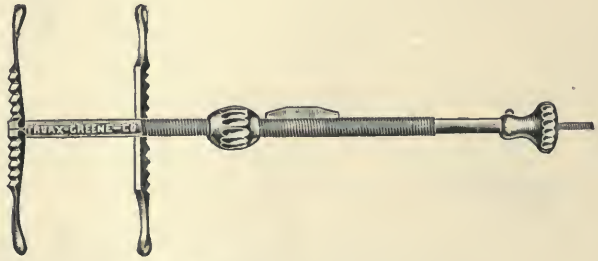

FIG. 1.—Showing arms in position for use.

It consists of two pairs of hinged arms so adjusted that they may be firmly held at right angles to a central shaft (Fig. 1). When in position for withdrawal, one pair of arms, the end or distal, form an

FIG. 2.—Showing arms extended for withdrawal through remaining opening.

extension of the instrument, the other, or inner pair, when closed, rest within a slot that extends laterally through the shaft (Fig. 2). The shaft consists of two telescoping tubes, one within the other, the outer one threaded, the inner containing a central steel rod. The latter is threaded at its proximal end and provided with a milled nut. This rod is attached to the proximal pair of arms so that when retracted the latter are tightly drawn against the distal end of the inner rod, the arms being then flexed at right angles with the shaft. In this position they are firmly held until released by unscrewing

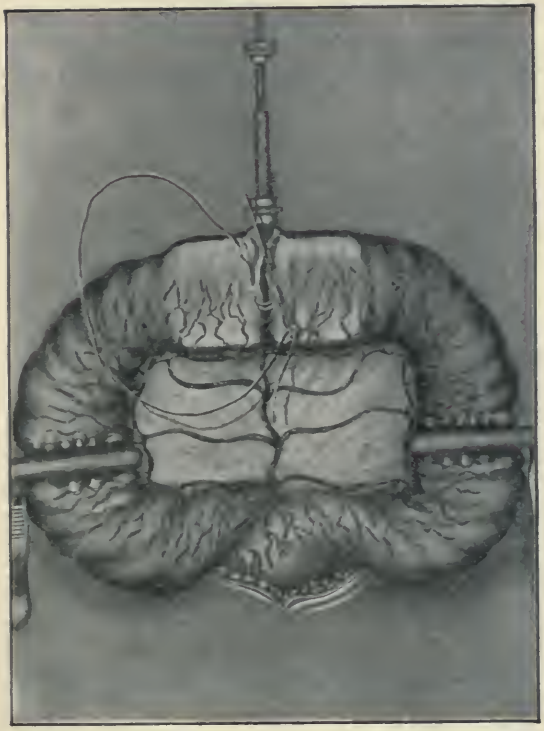

FIG. 3.—Holder in position and suture of one side of intestine partially completed.

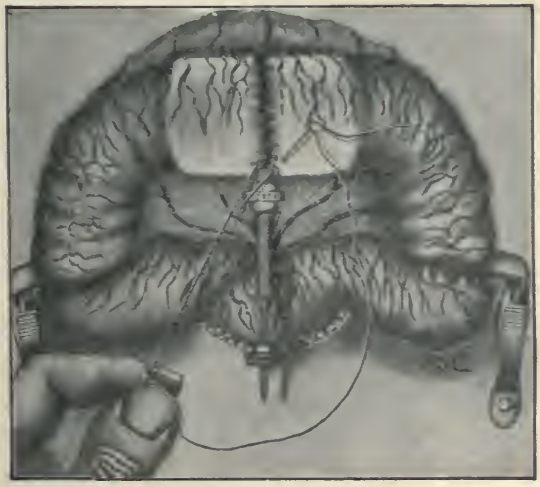

FIG. 4.—Suture of one side of intestine completed.

the milled nut previously mentioned. While the outer pair of arms are hinged to the distal portion of the outer tube, the proximal pair attached to the rod, and longitudinally clamped to the inner tube, may be actuated back and forth by means of a wing attached to the inner tube and a traveling nut moving on the threaded portion of

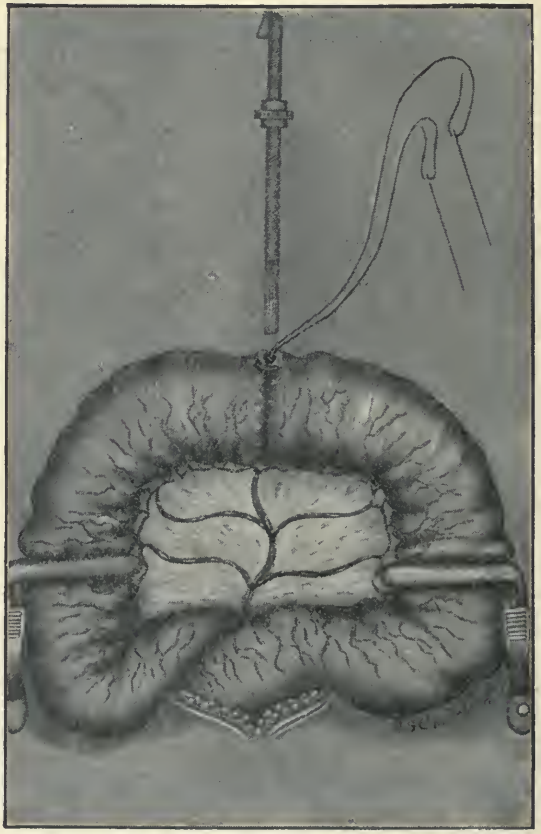

FIG. 5.—Suture of both sides of intestine completed. Holder folded and removed.

the outer tube. The latter is slotted throughout its entire length, thus furnishing a groove for the passage of the wing. The outer margins of the arms are laterally corrugated, to better hold and retain the ends of the intestine. Each arm is provided with a bulbous-shaped tip, the neck of each bulb being so slender as to form a yielding spring that overcomes the tendency to tear or perforate

the distended intestine. It will thus be seen that the arms of this instrument may be brought close together, the cut ends of the intestine to be sutured slipped over the arms upon either side, after which, by means of the traveling nut, the distance between the arms may be increased until the intestinal ends are stretched and held taut, the borders or margins being in close contact with each other. In this position they may not only be held firmly, but the instrument serves as a handle by which the parts may be manipulated, thus facilitating suturing.

The latter may be completed, with the exception of one or two stitches — those around the shaft of the instrument and proximal to the inner pair of arms. By turning the winged nut at the proximal end of the instrument, the inner pair of arms may be caused to extend or collapse within the body of the instrument; on attempting to remove the instrument through the opening, the tension is released from the outer pair of arms. These quickly collapse, so that the entire instrument may be withdrawn through the small opening, after which the latter may be closed in the usual way.

Curetting of the Urethra in Posterior Urethritis.—

George Walker, in the *Maryland Medical Journal* for March, 1901, says that curetting of the urethra has been restricted to abscesses and deep urethral ulcerations, with the exception of a few who have used the method in granulation of the urethra. He has employed this method in chronic cases of urethritis which have resisted treatment by dilatation and by irrigation. These cases showed, upon endoscopic examination, that the posterior urethra, mostly in the bulbous portion, was the site of infiltrations which extended beneath the surface. The mucous membrane was congested, and in some cases riddled by granulation tissue and small ulcerated patches. In such a condition it is found that the gonococci have penetrated the epithelium and in some cases reached the muscular coat. Any treatment, to be effective in these cases, must be radical. The curette used in these cases does not differ essentially from that employed for other purposes except that it is long and very slender. The curetting end is cup-shaped, measuring two millimeters in diameter, and is very sharp. Preparatory to the operation, the urethra is thoroughly irrigated with a 1-to-40,000 bichloride solution, and then a four-per-cent cocaine solution is instilled and held five minutes. An endoscopic tube as large as possible is introduced and the diseased spot located. The curette is then used, and the diseased tissue entirely removed, together with the epithelial layer and the submucous tissue if necessary. After this

has been done a ten-per-cent solution of nitrate of silver is applied to the spot by means of a cotton pledget. The endoscope is then pulled slightly forward and another area treated in the same manner. If the disease has extended deeply so that much superficial tissue needs to be removed, the operation should be restricted to a limited portion of the urethra, not more than one centimeter. In some cases where bleeding is extensive the light must be dispensed with, and in these it is best to be guided by the sense of touch alone. The pain is not severe, and if the cocaine has been properly applied there is scarcely any sensation.

Following the treatment there is usually set up a profuse purulent discharge which lasts for one or two days. On microscopic examination it is found loaded with short bacilli, diplococci, and usually a few gonococci. After the operation the urethra is irrigated with 1-to-50,000 bichloride solution. The writer has employed this treatment for five or six months, and has succeeded in relieving some very obstinate cases which had resisted all the usual methods.

Effusion into the Knee-joints in Women and Young Girls.—

William H. Bennett, in *The Lancet* of February 23, 1901, calls attention to what he terms "quiet" effusion into the knee-joint. He also speaks of it as a passive effusion, its characteristic being that it rarely involves other than the knee-joint, and it is usually bilateral, though the amount of fluid on one side is greater than the other. There is rarely any pain, but occasionally a feeling of weakness; a considerable percentage of those who suffer from this complaint are unaware of its existence. It is limited to girls and women, and is always associated with menstrual irregularity or uterine trouble, occurring mainly at puberty and the climacteric. His attention was attracted to these cases some years ago by noticing that a number of young girls, who were out-patients, had painless swellings of the knee-joint. There was not thought to be anything the matter with them, but it was noted that they tired easily and that they were prone to fall without obvious cause. In these cases the joint was never tense, except where there was superadded injury. The fluid in the joints, if the patient is standing, sinks to the lower part, which leads to a pouching of the synovial membrane on each side of the patellar ligament.

This condition is commonly discovered by the attention of the physician being called to it, the patient stating that it has resulted from some slight injury or twist. As it is always chronic, and occurs in children of a delicate type, it is often mistaken for tuber-

culous disease, or it is attributed to traumatism. Both of these errors can be avoided by noting that the effusion is on both sides, that it is painless, that there is no evidence of inflammation, and that it is coincident with marked menstrual or uterine trouble.

In only one instance has the writer noted the swelling in other than the knee-joint, and in that case it occurred in the ankle. The practical bearing of these observations is that when one is called to examine a woman complaining of a traumatic condition in one knee-joint and the patient is at the period of puberty or at the climacteric, never omit to examine both knees. If fluid is found in both knees, it is evident that the traumatism to which the patient attributes the trouble is not primarily responsible for it. In the treatment of these cases rest and splints are contraindicated. Treatment should be directed to the correction of the faulty functions, while moderate exercise, massage for the knee, combined with a healthy outdoor life, are the clear indications. The prognosis is good.

An Improved Method of Examining the Bladder in Women.—

W. R. Pryor, in the *Medical Record* of March 2, 1901, describes a new cystoscope and also a method of distending the bladder by atmospheric air. The patient is placed in the knee-chest position, and all constricting bands are removed from the abdomen, so that the abdominal viscera gravitate upward. The cystoscope consists of a simple tube, at the end of which is a small electric lamp. When introduced and the connections properly made, the whole interior of the bladder is illuminated and the vesical mucosa is inspected by direct vision. With the patient in this position, the bladder, instead of presenting the usual collapsed triangular cavity which is seen in the lithotomy position, is ballooned outward by the inrushing air so that it forms a more or less quadrilateral space. There is a great advantage in having the bladder distended with air over its distention with any fluid while inspecting its walls. In some cases the air carries the posterior wall of the bladder so far upward that the trigonum as well as the orifice of the ureters is carried out of the plane of vision. Where this is the case, it is readily obviated by allowing the air to enter the vagina at the same time, or introducing a pledget of cotton which pushes the posterior wall of the bladder forward and brings the ureteral orifices into view.

Hernia of the Adductor Longus Muscle.—

C. A. McWilliams, in the *Medical Record* of March 23, 1901, describes a rare condition. The patient was a man of athletic

build, and while making strong muscular exertion he suddenly felt a pain on the inner side of the right thigh, and a swelling appeared which persisted. Upon cutting down upon this swelling, it was found to be a hernia of the adductor longus muscle, whose violent contraction had split its proper sheath and the deep fascia of the thigh, causing the muscle to appear beneath the skin as a distinct tumor. The protruding portion of the muscle was excised, the deep fascia was sutured, and the patient made a perfect recovery.

THERAPEUTICS.

The Conservative Management of Prostatic Hypertrophy.—

J. R. Hayden, in the *Medical Record* of March 23, 1901, writes under the heading, "Conservatism in the Diagnosis and Treatment of Prostatic Hypertrophy." We readily recognize a conservative treatment, but this is the first time we have noted a distinct plea for conservatism in diagnosis. Attention is called to the tendency to subject all cases to operative intervention before palliative or local treatment is tried. A careful examination of the reported cases in which the Bottini operation is done shows them to be those in which posterior urethritis and prostatitis play a more important rôle than the hypertrophied condition. In these cases equally brilliant results would be obtained by rest and non-operative interference. This lessens the engorgement of the prostatic vessels and congestion of the base of the bladder, which, even if operation should become necessary, lessens its danger and the liability to hemorrhage. He does not deny the necessity of surgical interference in properly selected cases, but contends that palliative treatment should always be employed before hurrying the patient to a severe and what may prove a fatal operation.

Among the palliative methods he recommends boric acid or urotropin to keep the urine in a normally acid condition. The urine may be too concentrated and too acid; in such cases it may be irritating, and it may be necessary to administer alkalies, either alone or combined with hyoscyamus or uva-ursi. Rectal irrigations of hot salt solution at a temperature from 110° to 120° F. once or twice daily cause a marked improvement in the painful and inflammatory symptoms referable to the prostate, and tend to lessen the size and consistence of the gland; the hot sitz bath and hot perineal applications are also serviceable. The amount of residual urine should be carefully noted, and it should be drawn at regular intervals with

sterile soft catheters. Prostatic massage is, as a rule, not indicated, but if employed it should be at long intervals. Medicated rectal suppositories sometimes act favorably. Rest in the recumbent position is useful in some cases, while others are more comfortable up and about. Hemorrhoids should be treated when they complicate or aggravate these cases. If stricture of the urethra is present it should be dilated slowly, or if this is not practicable, it should be conservatively incised.

The result of such treatment carefully carried out lessens the size of the prostate and the amount of the residual urine. After all possible improvement has been had from palliative measures the advisability of operative intervention should be discussed. Hayden leans decidedly toward the radical method of complete removal, either by the suprapubic or perineal route, or by a combination of both methods. The Bottini operation may be of service in certain carefully selected cases, but it does not give as immediate and free vesical drainage as prostatectomy, which is a strong argument against its general adoption. Prompt and unobstructed drainage of the bladder is a most important factor in the treatment of these cases.

The Rest Treatment in Hysteria.—

John K. Mitchell (*Journal of the American Medical Association*, March 9, 1901) says that those cases of hysteria adapted to the rest treatment present great nervous irritability combined with physical weakness, together with an absence of a distinct organic disease and the moral defects which so commonly accompany pronounced hysterical cases. As a rule, the worse the case, the more satisfactory the treatment. An emaciated, half-blind, anemic girl, who eats nothing, and keeps herself in a dark room, where to a sympathetic selection of relatives she plays her hysterical comedy, sometimes to a tragic conclusion, is the kind that gives promise of a highly successful result. He prefers treatment in a private house rather than in a public institution, although a private room in a good hospital, if the patient can have the services of a personal nurse, will answer. In the hospital ward the matter of isolation is hard to manage. He does not like sanitaria, as this means the herding together of considerable numbers of partially recovered patients, together with a swapping of symptoms and a comparison of the virtues or vices of respective nurses. Nurses should be strangers to patients; a relative should never be in attendance. The strictest orders should be given to the nurse not to discuss any symptoms she may observe, or difficulties in the management

of the case, with the patient. She should report to the physician at his daily visit and then promptly retire. If a patient does not do well and no good reason can be found for the failure, then it is well to change the nurse; it is no reflection upon her capacity to do so, as she may not be well adapted to the case in hand. Isolation is the most important part of the treatment, and this can rarely be secured in the patient's home, as the difficulty in dealing with relatives and friends is greater than in dealing with the patient. In home treatment there is that failure of complete change of moral atmosphere which is so desirable. The period the patient should remain under treatment depends upon the case; in those of moderate severity, from six to eight weeks of isolation is all that is required. Rest, like isolation, is often badly borne in the early days of treatment, but complaints if met with patience and firmness usually disappear within a week; the patient becomes resigned, and is often satisfied with a life of complete physical immobility.

In dieting the patient, if there be gastrointestinal disturbance, milk often makes a good starting-point. In case milk is not well borne, it should be substituted by ordinary food, and sometimes skimmed milk when whole milk disagrees. No stress is laid upon taking large quantities of food during the first few days, as it is hoped that the rest and massage will result in stimulating the appetite.

In the application of massage, it is well to have some one other than the nurse give the treatment. It furnishes a rest for the nurse, who is otherwise quite busily employed with the care of the patient. It should be begun on the second or third day of the rest treatment and gradually increased in duration and severity. The second daily rubbing may be given by the nurse, though not so thoroughly, but especially directed to the spine and abdomen at night. If the massage is not followed by improvement in the appetite, it is pretty good evidence that it is badly done, or not sufficient in amount.

The Tuberculin Test in Tuberculosis of the Bones and Joints.—

C. H. Frazier and M. H. Briggs (*University of Pennsylvania Medical Bulletin*, March, 1901) have studied the tuberculin reaction in old cases of bone and joint lesion, some of which had been operated on and the patients regarded themselves as fully restored. The tuberculin test is said to be free from danger; at least the writers do not believe that it is responsible for those cases of disseminated tuberculosis which are said to have followed its employment. The object of their study was not to determine if tuberculin could be

used to advantage as the means of revealing the presence of a focus in the incipiency of the disease, but if it could be used to demonstrate whether the disease was active and thus guide the surgeon in its treatment.

The method they employed is given, and there is also a description of the reaction. They classified their material into three groups: (1) recovered, (2) quiescent, (3) active. Of the first class, 78 per cent reacted; of the second, 100 per cent; and of the third, 80 per cent. Those cases in which for periods varying from one to seven years there had been no clinical evidence of tuberculosis, reacted with the same relative frequency as those in which there was every reason to believe that the tubercular process was active. Several explanations of these facts are offered, one being that the tuberculin test is not reliable, which is rejected, as it is very rare that a non-tuberculous patient reacts to the test. A further possibility is that around the tubercular lesion in the bone or joint may be infected tissue microscopic in size that is not recognized at the time of operation. A more probable explanation is found in the supposition that the tubercular process is in the deep-seated glands of the abdomen or thoracic cavities. These glands may act as an intermediary host for the tubercle bacillus, and react long after the "primary" focus has disappeared. The presence of such foci in the glandular system serves to stamp as unreliable the effect of the tuberculin test when employed for testing the supposed tubercular nature of a lesion in other portions of the body. In the deep-seated glands tuberculosis does not lead to caseation and liquefaction with consequent softening, as it does in the superficial glands. A further confirmation of the view that these may furnish the reaction for tuberculin is found in the fact that many times upon post-mortem examination the retroperitoneal lymphatic glands are found tubercular or present evidence of an old tubercular process of which there was no clinical evidence during life.

Treatment of Vernal Conjunctivitis.—

L. W. Fox, in the *Annals of Ophthalmology* for January, 1901, speaks of the obstinacy with which this disease recurs year after year in the same person. He agrees with Nantanson that it is essentially a disease of the epithelium of the conjunctivæ. His first patient was seen in 1886. He had been affected for the last four years with an inflammation of both eyes, associated with an intolerable itching, lacrimation, and photophobia. The mucosa was hyperemic, there was pericorneal infiltration, and a few granulations scattered over

the surface. A simple collyrium was given, which afforded some relief. This was also used the following year, but the next season the disease returned earlier than usual, and nitrate of silver was added to the treatment. This brought the attack to an end early in April, when the patient was free from the trouble until July. Pyoktanin was then used, which allayed the irritation for that summer. For the next seven years the patient sought various means of relief, but not securing any finally returned. As palliative measures had been ineffective, grattage was performed. The reaction after the operation was trifling and was followed by the disappearance of the conjunctivitis; for the first time in years the patient spent a comfortable July and August. The excellent result in this case led to his employing the same treatment in four other cases, in which it has been equally successful.

In using this treatment the upper eyelid is grasped along its margin by forceps and the edge is turned upon itself; the lid is rolled up until the retrotarsal fold is brought out. The exposed part is thoroughly scarified with a three-bladed scalpel, not only horizontally, but vertically. The granular tissue is then scrubbed with a brush which has been steeped in a corrosive sublimate solution 1:500 just before being used. Immediately after being scrubbed the part is washed with a solution of the same strength. Another part of the lid is then unrolled, and the scraping, scrubbing, and washing is repeated until the whole of the conjunctiva has been treated. It has never been necessary for the writer to repeat this operation on an eyelid. Local temporary relief in these cases has been secured from an ointment composed of one-eighth grain yellow oxide of mercury and one-eighth grain of ammoniated ichthyol to a drachm of vaselin, this application to be followed by chinosol 1:2000 three or four times daily.

Normal Salt Solution in the Treatment of Gonorrhea.—

C. L. Woodruff, in the *Medical Record* of March 16, 1901, says that the irrigation method of treating gonorrhea with the addition of various substances to the irrigating fluid makes one skeptical as to the value of the addition. At the most, such dilute solutions can only kill germs which are on the surface, and those could be just as well washed out with plain water. Other writers have observed the same thing, claiming that the weak solutions of potassium permanganate 1:5000 to 1:10,000 were quite as efficient as the stronger solution, and they did not produce a reaction in the tissues.

The vitality of the gonococcus is slight, as cases of infection

without the direct transference of the germ are comparatively rare, and only occur very soon after the germ has left the parent host. If cooled below 79°, or if raised to a temperature above 100.4°, it will not grow at all. In cases of soldiers with gonorrhea who are at the same time suffering from general infection, the writer has known the discharge to cease entirely during the febrile reaction and to return after the fever had run its course. His method of treating gonorrhea is by frequent irrigations of normal salt solution at as high a temperature as can be borne. At the beginning the gonorrheal infection is only a local disease, and hence local remedies are efficient in its management. The toxin formed by the gonococcus is very virulent, and it is a logical deduction that the more promptly it is removed from the urethra the less likelihood there is of its being absorbed, and the less probability of the extension of the inflammation. If the discharge persists beyond ten days, he usually finds that the irrigations are not properly done. Commonly a quart of the solution is employed, which the patient uses every hour. He has employed santal and mixtures containing methylene blue in connection with the treatment, but has not found that they added anything to its efficiency.

Collodion in Exophthalmic Goitre.—

A. T. Haight, in the *Chicago Medical Recorder* for March, 1901, says that the application of collodion is useful in diminishing the size of the thyroid in this disease. He claims to have treated six cases in all, four in women and two in men. In one of these a detailed history is given. The patient, 38 years of age, about one month before being seen, noted that her neck was slightly enlarged. On examination, a double goitre of medium size was found, with exophthalmus and a pulse of 120. The patient was somewhat melancholy, but was fairly well nourished. Collodion was applied to the goitre, which reduced its size about one-third. Internally ten grains of iodide of potassium in a drachm of syrup of hydriodic acid was given four times a day. The treatment was continued for about three months, at the end of which time all of the symptoms had disappeared. The course of the other cases is said to be very similar to this, only varying in the length of time under treatment. In each case, after the first application of the treatment, all the symptoms were more or less decreased, the pulse-rate being lowered from ten to fifteen beats, and in one case as much as thirty. In four cases all symptoms of the disease have disappeared, in one there having been no return of the disease in two years. In all the cases

some dermatitis was noticed. No symptoms of pressure upon the trachea were noted except in one case on the first application. The collodion should be fresh, so as to give a maximum amount of contraction with each application. The effect is increased by a douche of compressed air, by which a more rapid evaporation of the ether is secured and a sharper contraction. In using the collodion, the patient's head should be placed in an easy position with the muscles relaxed. It is applied with a brush, and repeated applications are made at intervals of from two to five days.

Treatment of Tuberculous Glands of the Neck by Electrolysis.—

G. B. Massey, in the *Philadelphia Medical Journal* of March 23, 1901, says that efforts to cause absorption of enlarged glands of the neck by applications of electricity through the skin have not met with success in his hands. He now uses cataphoric diffusion of nascent oxychloride of mercury. A small opening is made through the skin and into the gland by a narrow bistoury under chloride of ethyl spray, and into this opening is thrust a small piece of amalgamated zinc. This is connected with a weak galvanic current of one to three milliamperes, which is turned on slowly and maintained for a few moments. The purpose of this is to cauterize the edges of the tract that has been made and keep it open. The zinc electrode is then withdrawn and an insulated gold electrode, its point having been previously amalgamated with mercury, is inserted. The instrument is bare for one-quarter inch from the point, the remainder being covered with hard rubber. After its introduction a current of two to ten milliamperes is turned on and maintained for ten minutes, or until all the mercury has disappeared from the surface of the electrode. Then a piece of absorbent cotton or lint is placed over the opening and held by adhesive plaster. The applications are made at intervals of two or three days. Sometimes there is slight pain, which is readily overcome by a single drop of ten-per-cent solution of cocaine placed in the opening. Two cases are reported in which this method was successfully employed for the reduction of enlarged glands, probably tubercular.

Homatropine as a Cycloplegic.—

Edward Jackson, in the *Annals of Ophthalmology* for January, 1901, says that homatropine is a cycloplegic of the greatest value, and the evidence upon which some have rejected it is very meager. It does not possess the surplus power of atropine, and therefore it must be used with greater care. Carelessly used solutions of atropine

will produce very marked dilatation of the pupil; if directions be given for two or three instillations a day, and if only one of these is effective, it will probably produce full mydriasis. In the last 1000 patients upon whom the drug was used there were twenty-two in whom the incomplete paralysis of accommodation was suspected. These were examined under a stronger mydriatic, and of the forty-four eyes only six showed a higher refractive error than was noted under homatropine.

The use of the ophthalmic disks is not recommended; he employs a solution of one to thirty or one to forty. In the application the upper lid is slightly raised and steadied with one finger, and a small drop, usually less than one-half minim, is placed at the upper margin of the cornea. The eye is then held open for from fifteen to twenty seconds, until the patient, by holding open the other eye, shows he has gained control of the lids. This is repeated every five minutes until five or six instillations have been made.

Some samples of homatropine are irritating. Especial care should be taken in bringing the solution in contact with the cornea not to have it strike from a considerable distance. The amount of the drug commonly employed is from one-sixth to one-quarter of a grain. This rarely produces constitutional symptoms.

Aqueous Extract of Suprarenal Gland in Persistent Epistaxis.—

L. Somers, in the *Philadelphia Medical Journal* of March 2, 1901, says that chronic epistaxis is one of the most annoying and sometimes serious incidents confronting the rhinologist. It is a symptom that frequently ceases spontaneously. If treatment is required, it frequently yields to a sponge, or the application of the actual cautery, but the latter is followed by a loss of tissue and formation of an eschar, to be followed frequently by a secondary hemorrhage. The desiccated suprarenal gland in solution has proven especially valuable in his cases in which epistaxis has extended over a long period of time, and which had resisted the usual treatment. The large proportion of animal matter in desiccated suprarenal makes solutions especially liable to putrefactive changes; therefore care should be taken to have them fresh. If the suprarenal is applied upon pledgets of cotton, it should not be left too long *in situ*, as otherwise a decomposition may take place, with the absorption of putrefactive products.

The suprarenal is a local hemostatic of great value. It has no effect upon the bleeding itself, but acts slowly by constricting the smaller blood-vessels, with a corresponding blanching of the parts.

It has a still further action than that of vascular contraction, as under its use erosions heal and an improved nutritive tone is given to the tissues, a quality that no other local remedy seems to possess. This has been noted in all the cases in which the nasal conditions indicated its use.

Relief of Paralysis Agitans and Other Forms of Tremor by Systematic Exercise.—

J. M. Taylor, in the *Journal of Nervous and Mental Diseases* for March, 1901, states he has been treating certain forms of tremor that occur in middle-aged folk, the nature of which is not always clear, by regulated movements. He has been assisted in this work by a teacher of physical culture who devised a system by which a greater degree of elasticity should be given the extremities and the tissues. Among the cases was that of a blacksmith in active employment who suffered from paralysis agitans, and an artist who suffered from a distressing form of tremor. In all these cases there was a tendency to contracture, more marked in the skeletal muscles and especially conspicuous in those of the back of the neck, the shoulder-blade, the lower lumbar regions, and the hips. In these cases it was noted that while there was no lack of flexor power in the muscles, the extensors were markedly diminished, and it was especially along these lines that the treatment and exercises were conducted, to strengthen the voluntary control and power of the extensor muscles.

A very advanced case of Parkinson's disease is described, in which the patient was quite helpless from the contractures, and in which very marked improvement was obtained from six months' active treatment with the exercises.

Intravenous Infusion of Saline Solution in Delirium Tremens.—

J. P. Warbasse, in the *Medical News* of March 2, 1901, reports the case of a man 30 years of age, a habitual user of alcohol. He sustained a fall from a wagon, with a contusion of the side of the chest and abdomen and a slight wound of the scalp. This was accompanied by transient cerebral symptoms. The first symptom was the appearance of a tremor a few hours after the injury. This continued in a slight degree until the third day, when the temperature rapidly rose to 104.2° F., with violent delirium. The pulse became rapid and weak, and on the fourth day the temperature was 105°. Until this time sedatives and the routine treatment for delirium tremens had been employed. On the fifth day his general condition was

worse. The skin was cyanotic, he was covered with a cold perspiration, and the delirium was of a low muttering type. The case gave every appearance of early dissolution. At this point 1200 cubic centimeters of saline solution at a temperature of 116° F. was introduced into the median cephalic vein. Under this treatment the circulation rapidly improved, the delirium subsided, and the patient regained consciousness within a few hours. On the following day the temperature had subsided to 99.6°, and recovery was rapid and uneventful.

Chloretone in Dusting Powders.—

E. H. Sites, in the *Therapeutic Gazette* of March 15, 1901, says that chloretone is a valuable addition to dusting powders, as it promptly relieves the pain in granulating wounds and does not delay union. He has commonly used it with boric acid, but it may be mixed with any other powder. It does not hasten the granulation process, but its analgesic power is one that commends it in practice. He has used chloretone in solution as a local antiseptic and failed, but in the form of a powder it has proven very efficient. He reports in all thirty-two cases, including condylomata, cases of adherent prepuce which had been circumcised, varicose ulcers, infected wounds, ulcerated wounds of the scalp, and others in which chloretone was used in this manner. One case of large granulating chancroid complained of a great deal of pain. Chloretone was used freely, and at the end of forty-eight hours the pain was greatly diminished. Two days later there was no pain, and the ulcer rapidly healed.

The Treatment of Tuberculous Peritonitis.—

I. Burney Yeo, in *The Lancet* of March 16, 1901, says the results that have been reached in the surgical treatment of tubercular peritonitis lead to a more hopeful view. He reports three cases in which marked improvement was obtained from the persistent application of iodoform inunctions to the abdomen and the administration of iodide of potassium by the stomach. The theory upon which the treatment acts is that the iodoform is absorbed and is excreted by the ordinary emunctories, and in addition, the iodine is secreted directly into the serous cavities. The fluid contained in them becomes more or less rapidly saturated with iodine compounds of sufficient strength to materially interfere with the development of the tubercle bacillus. Surgical experience with tuberculosis of the peritoneum shows that the infection in these cases is not very viru-

lent, and any disturbance of the natural conditions easily results in a destruction of the bacillus, or at least in a marked reduction in its vitality.

Ichthyol in the Treatment of Deep-seated Inflammation.—

Walter T. Slevin, in the *New York Medical Journal* of March 9, 1901, says that he has used ichthyol in a number of different combinations in the treatment of deep-seated inflammations, but has not been wholly satisfied. He recommends the following formula in deep as well as superficial inflammations:

Ichthyol	45 grains.
Lead iodide	45 grains.
Ammonium chloride	10 grains.
Petroleum	enough to make 1 ounce.

This ointment is especially useful in erysipelas and tonsillar abscess. In one case of bronchial pneumonia in which it was used as an external application to the chest, great relief was obtained.

Ice Per Rectum in Narcotic Poisoning.—

Willis Cummings, in *Merck's Archives* for March, 1901, says that several years ago he saw an item in a medical journal calling attention to the value of this procedure. Since then he has never seen a reference to it, but he has treated several cases in this manner. In the cases of morphine poisoning which are reported, coma was very quickly relieved by the introduction of the ice, but in each case it was followed by other treatment, such as atropine, emetics, etc. He reports one case of chloral poisoning, and another of suffocation from coal gas, in which prompt relief was afforded by the procedure.

OBSTETRICS, GYNECOLOGY, AND PEDIATRICS.

Jaundice in Children.—

George F. Still recently delivered a clinical lecture upon this subject at the Hospital for Sick Children, Great Ormand Street, London (*Clinical Journal*, March 13, 1901). He considers the symptom chiefly with reference to prognosis. It is of some practical importance to recognize the different conditions under which jaundice occurs. In many cases it is a symptom of some transient disorder, while in others it is of grave significance. From 30 to 80 per cent of all infants have icterus neonatorum. It commonly appears within the first week, usually on the third or fourth day;

first on the trunk and face, then on the limbs and conjunctivæ. In the milder cases the urine and feces are normal. The child's health does not suffer, and after four or five days, or at least one or two weeks, the jaundice disappears. The text-books commonly give two weeks as the duration of severe cases, but he has observed cases which lasted for two months and then passed off, leaving the infants apparently no worse than before the attack. It is difficult to offer an explanation of these prolonged cases of icterus neonatorum, but clinically they may be grouped with those that are of shorter duration. It is of some importance to recognize the features of a benign jaundice extending over many weeks, as the contrary notion would lead one to suspect some organic disease of the liver.

In these benign cases of jaundice there is not the intense yellow of those who have the congenital obliteration of the ducts, nor the enlargement of liver and spleen and hardness of the liver which characterizes the obliterative cases. Some cases of prolonged jaundice, while they apparently recover, may later show signs of grave constitutional disease. In one case in which the jaundice lasted for many weeks and then cleared up, the infant apparently recovered, and some months later came under observation with splenic anemia. The latter condition the author thinks is in some cases associated with changes in the liver.

The origin of icterus neonatorum is due to obstruction and increased viscidity of the bile. The biliary secretion is accomplished under very low pressure, and a slight increase in intrahepatic tension is sufficient to lead to absorption of bile. Such conditions are found in the biliary passages of the infant at birth; they are filled with a viscid secretion, and the more rapid metabolism which takes place shortly after the ingestion of food gives an increased secretion of bile which has difficulty in making its way into the intestine. Biliary concretion and calculi are very rare in children, but are most common in the first few months of infancy. Of twenty-three cases which Still has collected, including three cases which came under his own observation, fifteen were in infants; fourteen being in infants under ten months of age. The usual course of jaundice in syphilitic infants is steadily downward. The presence of deep jaundice at birth is a point that suggests congenital syphilis, but is not to be regarded as a certain symptom, as the jaundice due to syphilitic changes may come on weeks after birth. Those cases of jaundice due to obliteration and malformation of the bile ducts are always fatal, being accompanied by intense discoloration of the skin, frequent hemorrhages, and an enlarged and firm liver

and spleen. A striking peculiarity of these cases is that the jaundice may not come on until some time after birth. In one of the writer's cases jaundice did not appear until three weeks after, though a post-mortem examination showed a complete absence of the cystic and biliary ducts.

There seems to be a tendency in some families to severe cases of jaundice among the children. In two instances malformation of the bile ducts was found in the same family. In one family an infant died at the age of eighteen days with jaundice; four other children in the same family had jaundice lasting from four to six weeks after birth.

In children beyond the age of infancy jaundice is most frequent between the ages of two and six years. The child usually complains for some days before the jaundice appears, and is often fretful, the appetite is bad, and there is almost invariably some disturbance of the bowels, either diarrhea, constipation, or offensive stools. Vomiting commonly precedes or accompanies the jaundice. The urine quickly becomes darkened and the feces pale. In many cases there is pain in the epigastrium and the hypogastrium, and this may be a marked symptom. Slowing of the pulse and itching of the skin are not common symptoms in icteric jaundice in children. As a rule, such an attack of jaundice as is here described passes off in from ten to fourteen days.

Jaundice is sometimes a recurring symptom in children. In one of Still's cases during the last two years there have been seven or eight attacks of jaundice. The patient for a short time before each attack becomes drowsy, there is vomiting, and pain in the abdomen. The mental hebetude enables the parents to predict the recurrence of an attack.

It is always to be remembered that cirrhosis is not infrequent in childhood—not the ordinary intercellular cirrhosis of syphilis, but the peculiar "hobnail" variety, which is so commonly seen as a result of the excessive use of alcohol in adults. A striking feature of these cases is the enlargement of the spleen. Children who come under observation with this disease are generally between the ages of four and thirteen years, the duration of the disorder being about two years.

Jaundice is a not infrequent complication of anemia, heart disease, and tuberculosis. Heart disease furnishes by far the largest number of cases. A comparatively rare form of jaundice is that associated with acute yellow atrophy of the liver, typical examples of which are met with in childhood.

The Diagnosis and Treatment of Adenoids by the General Practitioner.—

Francis Huber, in the *Archives of Pediatrics* of March 1, 1901, says that the open mouth, drooping eyelids, dull expression, and thick voice indicate enlargement of the pharyngeal tonsil. Under no circumstances should these symptoms fail to receive recognition, but a moderate amount of disease may exist without these characteristic appearances. Repeated attacks of nasal catarrh are a suspicious sign. The exanthemata, as well as diphtheria, often cause a rapid increase in these growths which lead to pronounced nasal obstruction. Small lymph nodes, painless and movable, at the angle of the jaw are signs of nasopharyngeal trouble. All doubt is cleared up by a digital examination of the nasopharyngeal space. Dyspnea upon exertion, without evidence of heart or lung trouble, should not be attributed to the associated anemia, but the nasopharynx should be examined. Not infrequently a careful analysis is required to perceive the relationship which exists between certain cases of ear trouble, dyspeptic and nervous disorders, thoracic deformities, and the mental condition to which the term aprosexia has been applied. A form of trachoma in which there is lymphoid infiltration of the follicles has the same anatomical basis as enlargement of the pharyngeal tonsil.

Enlarged tonsils are generally associated with more or less enlargement of the adenoids at the vault of the nasopharynx. Removal of the faucial tonsils is often followed by improvement in the pharyngeal growth. In infants, the head is frequently thrown far back, and in those cases in which the breathing is necessarily buccal nursing is always difficult. Snoring is present during sleep, colds are easily contracted, and nasal catarrh with more or less acrid discharge is common.

The diagnosis may be made from symptoms, by means of a mirror or by digital exploration of the nasopharynx. In cases in which it may not be desirable to make a digital exploration, a diagnosis can be made as follows:

"*First.*—The presence of two small lymph nodes, painless and freely movable, at the angle of the lower jaw, one on either side. Though apt to become swollen with each new catarrhal inflammation of the nose, they return to their former size when the nasal trouble has disappeared, provided a mixed infection has not taken place.

"*Second.*—Upon oral examination and inspection, if the size of the tonsils does not obstruct the view, numerous small lymphoid hypertrophies will be found upon the mucous membrane of the pos-

terior pharynx; now and then at the level of the soft palate larger masses are present.

"The appearance of the diffused lymphoid infiltration is characteristic; the isolated prominences, more or less numerous, pearly and translucent in appearance, resemble smaller or larger sections of boiled sago projecting above the surface of the pharyngeal mucous membrane. Tenacious mucus or muco-pus, which should be removed, may coat the nasopharyngeal wall and partly obscure these small growths. The presence of the latter or of the lymph nodes, glands referred to at the angle of the jaw, justifies the diagnosis of adenoids, and a digital exploration of the nasopharynx for the purpose of establishing their existence is unnecessary under such circumstances.

"The importance of a correct interpretation of these two signs has been insisted upon and taught for six or seven years in the practical course of the Vanderbilt clinic. When one or both were present we were always able to remove large masses of adenoids from the nasopharynx, preliminary exploration with the finger not having been considered necessary."

Persistent Metrorrhagia.—

J. I. Parsons, in *The Lancet* of February 23, 1901, says that the ordinary causes of this condition, such as tumors, cancer, and diseased appendages, are well understood, but he especially directs attention to that class of cases, by no means infrequent, in which no obvious cause for the hemorrhage can be found. In these cases, if the curette is used and the endometrium is found to be thickened, curetting is commonly of service. If the endometrium is normal, it will be found that the operation often aggravates the hemorrhage. In such cases he has been able to stop the hemorrhage permanently by the use of the constant current. In the class of cases with a thickened endometrium which are relieved by curetting, there is an excessive glandular proliferation. In the second class of cases, in which the bleeding persists after curetting, there is a proliferation of connective tissue and the glands are increased in number. This is sometimes known as an interstitial endometritis.

The value of electricity in cases of bleeding fibroids led the writer to use this method in these cases, with correspondingly good results. The application is much easier in cases of metrorrhagia, because the uterine cavity is free from distortion. The applications are made by means of a platinum electrode with the aid of an insulating sheath which is passed to the fundus of the uterus. The sheath is adjusted

so as to reach just beyond the internal os. A clay pad is placed over the abdominal wall just above the pubes and connected to the negative pole, while the intra-uterine electrode is connected with the positive pole. At the first application only a mild current is used—not more than fifty milliamperes. The applications are made twice a week. The treatment should be suspended during the menstrual period, but if the flow lasts for more than a week, this is to be disregarded. In some cases of continuous flow there may be difficulty in determining the time of menstruation. As a rule, no improvement takes place until several applications have been made, when the hemorrhage begins rapidly to diminish. The constant current appears to stop the hemorrhage by means of its caustic action on the endometrium, and the hemostatic effect of the positive pole.

Percentage Feeding in Young Infants.—

J. P. Crozer Griffith, in the *Philadelphia Medical Journal* of March 16, 1901, says that one of the secrets of the successful feeding of very young infants is to begin with low percentages. The percentage of proteids, fats, and sugar in mothers' milk is often too high for the infant's digestion; we are not dealing with the natural food of the child, but with a proteid which is more difficult of digestion. In the first two weeks of life the child should not receive over .5 per cent of proteids. In older children it is always well to begin with a lower percentage, especially when the child has been fed on foods other than milk. In those cases in which curds are found in the stools, it is well to consider the question of reduction of proteids; such curds, however, should not be confounded with masses of fat. Fat should often be about two per cent instead of the normal four per cent. Especially should this be the case if there is a tendency to rancid vomiting. It is usually wise to begin with a less quantity of sugar than normal, namely, five or six per cent. For a very young baby, or those in ill health, a formula which contains fat 2 per cent, sugar 5 per cent, and proteids .5 per cent, will serve better than a stronger mixture. These quantities must soon be increased, first with fat, bringing this up to 3 per cent and the proteids to .75 or 1 per cent. If the child is weighed every week and there is no increase, with an absence of digestive disorders, it is a sure sign that the food is not sufficient in nourishment. In cases in which the child is thriving, there is no occasion to increase the quantity of the food; hence the arbitrary rule, basing the percentage of feeding upon the age of the child, is fallacious. Before coming to the conclusion that percentage feeding is faulty, we must be sure that the error is not with our own formula or method.

Pseudocyesis.—

E. P. Davis, in the *Philadelphia Medical Journal* of March 9, 1901, describes several cases of false pregnancy, one of which furnished a basis for a charge of criminal assault. The writer especially cautions against the examiner being misled by an ectopic gestation. In such cases the ordinary signs of pregnancy may be present, but a vaginal examination reveals the uterus of normal or but slightly above normal size, and this may lead to the statement that the patient is not pregnant. In most such cases an examination under ether is imperative, as by this means one is able to map out the pelvic organs. In patients who do not relax readily under an anesthetic, an exact diagnosis sometimes cannot be made, and it may be necessary to keep these under observation until such time as the symptoms declare themselves. Such examinations should always be made in the presence of a third person. It is often wise to demonstrate to the relatives the disappearance of an abdominal tumor under an anesthetic. It should be the special care of the physician to protect these patients from idle gossip; if the supposed condition of pregnancy has become known, it may cause the patient great mortification when the facts are brought to light. It is a mistake to allow patients with false pregnancy to go without treatment. The source of nervous irritation giving rise to the supposed pregnancy should be removed, the nutrition of the patient stimulated, and her condition brought as nearly to the normal as circumstances permit. The examination may reveal some pelvic disease which must be dealt with by operative or other treatment. Where the patient can afford it, rest in bed, massage, feeding, electrical treatment, and a carefully selected diet are indicated.

Diffuse Pneumococcus Peritonitis in an Infant.—

F. Brunn, in *La Presse Médicale* of February 27, 1901, describes the case of a child of five years who had usually good health, who for the previous five months had been slightly constipated, but had never had abdominal pain. The trouble began with a sharp pain in the belly accompanied by vomiting and diarrhea. The following day the vomiting reappeared and the child was brought to the hospital. Its general appearance was bad, the eyes retracted, the tongue coated, and the pulse was thready and 160 per minute. The bowel was distended and tender upon pressure, especially on the right side.

A diagnosis of appendicitis was made, and an incision made in the right iliac region. In the abdomen a cloudy liquid was found.

Appendix was amputated and found to be normal. A false membrane was found disseminated throughout the abdominal cavity. The intestinal glands were found enlarged. Bacteriological examination of the abdominal contents showed a pure culture of the pneumococcus.

Convulsions in Children.—

W. N. Bullard, in the *Boston Medical and Surgical Journal* of March 7, 1901, gives the result of his examination of the out-patient record of the Boston Children's Hospital from 1883 to 1894. Out of 7180 cases, seventy-nine were entered as eclampsia. Of these, six were manifestly cases of epilepsy with or without idiocy, leaving seventy-three cases of eclampsia, or about one per cent of the entire number of children. Ten per cent of the children who came for treatment between five and twelve years of age gave a history of convulsions. Cases that appear to be due to some manifest reflex cause may turn out to be true epilepsy. In other cases where the attacks occur frequently and without apparent cause, they may suddenly recover, at least for a considerable period. Children who have had convulsions may be strong and free from nervous tendencies in later life, although the proportion of those who are neurotic seems to be greater than in those who have not had convulsions.

FORENSIC MEDICINE.

Admissibility of Testimony of the Insane.—

The *Medical News* of March 16, 1901, refers to this subject editorially, anent the recent trial of the Bellevue nurse, Davis, for manslaughter. In the discussion several alienists held that it was unwise to admit the testimony of an insane person. The lawyers held that a witness need not be excluded from giving testimony because he is insane on some one subject. The case which established the precedent in this country was similar to the Bellevue case: the man who was killed and the chief witness were both lunatics in an asylum, and the testimony of the latter was accepted. In 1882 the Supreme Court of the United States stated that a lunatic would seldom be a competent witness, but when affected with a partial insanity he might be able to give a lucid and accurate account of what he had heard and seen, and that if in addition to that he was shown to be capable of understanding the nature of an oath, his

testimony might be accepted. The test of competency was, like other matters, to be left to the court.

From these earlier decisions the *News* dissents, and refers to the fact that the views regarding partial insanity have changed very much in the last twenty-five years. The old doctrine of a monomania or partial dementia, in which one faculty of the mind can be in abeyance or distorted without involving the remainder, is one not now generally accepted. While the insane person may have a correct perception of outward events, their description of them may be warped or distorted by their delusions. In paranoia, which is generally regarded by the laity as a partial form of insanity, all the relations of the individual with his fellow men are distorted by his delusions. If the court casts out the testimony of those whose moral character and past reputation show them guilty of wilful misrepresentation, it should be equally chary of accepting testimony from those whose mental characteristics have proven them incapable of perceiving facts as they are.

Damages for a Failure to Complete Contract on the Part of a Physician.—

A case which is described in the *San Francisco Examiner* has been extensively commented upon in the weekly medical press. It illustrates the fact that is so often lost sight of by physicians that the relation existing between them and their patients is a contractual one. In the case in question the physician was called to attend one Mrs. Margaret Lathrope. An operation was thought to be necessary, which the physician undertook to carry out, but the screams of the patient interfered with the necessary application of instruments, and finally she was told that if she "did not quit, he would quit." He finally left, though the patient was in agony, and the husband, following him to the door, entreated him to stay. At the end of an hour the services of another physician were secured and the mother's life was saved, but that of the child was sacrificed. Suit was begun against the physician, and a verdict of two thousand dollars damages was returned by the trial court, which was upheld by the Supreme Court. The decision is as follows: "It is the undoubted law that a physician may elect whether or not he will give his services to a case, but having accepted his employment and entered upon the discharge of his duties, he is bound to devote to the patient his best skill and attention and to abandon the case only under one or two conditions: First, where the contract is terminated by the employer, which termination may be made immediately; sec-

ond where it is terminated by the physician, which can only be done after due notice and an ample opportunity afforded to secure the presence of other medical attendance; . . . he can never be justified in abandoning a case as did this defendant, and the circumstances show a negligence, in its character amounting well-nigh to brutality."

Cases of Cruelty to Children.—

The Lancet of March 16, 1901, calls attention editorially to an aggravated case of cruelty to a child, which was brought to light at Bristol. The child's life had been insured for twenty-five pounds, and it was the desire of the father, as well as the stepmother, to destroy the child's life in such a way that detection would be impossible. For this they chose starvation and exposure to cold. At the time the case was discovered the condition of the child was very low, but fortunately his life was saved by proper treatment. He had been exposed in a room in which there was no fire for a considerable time, and this combined with deficient nourishment had reduced him to a very low state. In commenting upon the case, it is said that the system of child insurance which prevails in England directly fosters this character of crime, and it is thought that many children are disposed of in this way. Detection is practically impossible. A medical man who is summoned finds a poorly nourished child, or one suffering from pneumonia, a condition very likely to terminate one of these cases. Being assured that the cause of death is "natural," he issues a death certificate, and that is the end of the matter. It is not the duty of the medical man to act as a detective; the whole difficulty is in relation to child insurance.

We do not know how far child insurance has progressed in this country, probably not to the extent that it has in England, but it is certainly gaining ground at a remarkable rate in connection with so-called industrial insurance which is furnished in small amounts of from one hundred to five hundred dollars. With the spread of this form of insurance some necessary safeguards will have to be thrown around child-life, if they are to be protected from the greed of parents and guardians.

The Pupil After Death.—

J. E. Courtney, in the *Medical Record* of March 2, 1901, says that ordinarily the pupils are quite widely dilated and about equal after death, and shortly become fixed in a position of moderate dilatation. This is true in a majority of cases, but a considerable number of

autopsies in which the condition of the pupil is carefully observed will show many exceptions. His observations convince him that in certain cases of disease of the brain or its membranes the pupils may retain after death the impress of the condition imparted to them by the disease which caused dissolution. If this fact should be established and the data formulated, it might be of some service in suggesting the cause of dissolution in persons found dead. There appears nothing inconsistent in the idea of the muscular fibers of the iris becoming fixed in about the position in which they were at the time of death. He has noted this phenomenon in several conditions. In one case, in which the patient died of a large cerebral hemorrhage, the pupils were dilated on the side opposite the lesion and remained perceptibly so at the time of autopsy, ten or twelve hours after death. In cases of death from paretic dementia with a general meningeal cerebritis and adhesions of the pia to the convolutions, the pin-point pupils seen in life were unchanged at autopsy. In pachymeningitis hemorrhagica, the pupil contracted on the side of the hemorrhage has been repeatedly found so at autopsy.

The Medicolegal Value of Florence's Test for Spermin.—

An editorial in the *New York Medical Journal* of March 16, 1901, discusses the medicolegal value of Florence's test for spermin. When this reaction was first described, it was believed to be an invaluable test, it making no difference whether the spermin was fresh or in dried stains. The reagent is prepared by dissolving in thirty parts of water 1.65 parts of potassium iodide and 2.54 parts of iodine previously washed. In the presence of spermatic fluid, needle-like crystals are formed similar to hemin. A recent examination of the test shows that it is by no means constant—that is, seminal stains may be exposed to various conditions, chemical and otherwise, which will so alter their composition that the characteristic reaction will not be obtained. On the other hand, certain substances such as tincture of cantharides and atropine give a distinct reaction. These contradictory results confirm the conclusion that but little reliance can be placed upon this test save as confirmatory evidence; it cannot with safety be relied upon for medicolegal purposes.

It is understood that all original communications sent to this journal are for its pages exclusively, excepting in cases where articles are published in the transactions of the Societies before which they are read, or in which an abstract appears. Articles will be illustrated. Authors will be furnished a liberal number of reprints; or, if they so elect, an honorarium will be paid for original communications.

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ORIGINAL ARTICLES.

SOME POINTS OF PRACTICAL IMPORTANCE IN THE SYMPTOMS AND TREATMENT OF ACUTE PNEUMONIA.[1]

BY ROBERT H. BABCOCK, M.D., CHICAGO.

There are two conceptions of the nature of acute pneumonia: One, that it is a local inflammatory process of microbic origin with secondary systemic disturbance resulting from the absorption of toxins; the other, that it is primarily an acute infection having a peculiarly marked tendency to fibrinous exudation within the lungs, either alone or in conjunction with the same sort of exudate in the serous cavities, so that the pneumonia is but one of the local manifestations of the disease. To my mind this latter view corresponds with the morbid anatomical changes found post mortem, and explains the clinical phenomena observed during life.

The points which I desire to bring out in this paper are, first, that a pneumococcus pneumonia is not necessarily a lobar pneumonia; and secondly, that the gravity of the symptoms in many cases does not depend upon or bear any relation to the extent of the pneumonic process, but is the result of the infection.

The correctness of the first proposition is seen in those cases, usually called atypical, in which instead of the whole of one or more lobes becoming hepatized, signs of consolidation are discovered over a very limited area, perhaps at one base or over small patches in several situations. These are lobular pneumonias, not lobar, and if severe bronchitis is associated, they are likely to be regarded as bronchopneumonias.

The truth of the second proposition is seen in those cases in which with little or no discoverable evidence of pneumonia the

[1] Read before the Tri-State Medical Society, Keokuk, April 2, 1901.

patient nevertheless dies, in spite of the most approved treatment, from heart weakness accompanied by cyanosis.

The following case illustrates these two points admirably: A gentleman of 73, who had been ailing more or less for ten days with what appeared to be a simple acute bronchitis, was taken suddenly worse on Saturday afternoon with what seemed to be an asthmatic seizure. When his physician arrived the patient was still breathing with difficulty, but exhibited no signs of pneumonia. During that same evening the lungs filled with râles very like those of mild pulmonary edema, and there was frequent cough, with scanty mucous sputum. Temperature was subnormal—96⅘° in axilla; respirations were labored rather than accelerated. Codeine relieved the cough somewhat, and the next day his physician was unable to detect anything more than some roughness of the breath sounds in the left lung. Monday forenoon the patient developed a fever of 103°, with respirations of about 26, and moderate acceleration of the pulse. In the afternoon of that day his temperature in the axilla sank to normal, and when I saw him in consultation at 8.15 in the evening it was but 97.6°, respirations 28, and pulse 78 but occasionally intermittent; this last feature having developed at six o'clock. The patient lay partly turned to the right side, breathed without much difficulty, and was in a condition of somnolence, from which however he could be easily aroused, and was then entirely conscious. The heart was greatly enlarged, and the sounds, particularly the pulmonic second, were feeble, and there was moderate cyanosis. The abdomen was moderately tympanitic. Over the front of both lungs there were resonance and roughened vesicular breathing, except directly below the outer third of the left clavicle, where there was dulness, and the respiratory murmur was bronchial without râles. Posteriorly there was a small area of dulness and bronchial breathing in the right infrascapular region, and on the left side breath sounds were rough, but I could not make out any dulness. As already stated, the temperature in the axilla at this time was a trifle below 98°. But suspecting this to be delusive, I asked that the rectal temperature be taken, which was done, and the internal heat was found to be 102.1°. This settled the case, and I expressed the opinion that this was a pneumonia with scattered and small exudates, and that the patient was suffering from paralysis of the vasomotor centers in the cord with consequent capillary paresis and cardiac asthenia. The prognosis was declared most grave—in fact, it was predicted that recovery would not occur. In spite of vigorous and approved treatment the patient failed steadily, and died the following afternoon.

The instructive features of this case are three: first, the patchy distribution of the pneumonic exudate; secondly, the intensity of the infection, which led to death in less than three days from its invasion; and thirdly, the apparently subnormal temperature. Regarding the first I may say there can be no doubt of the nature of the disease notwithstanding the fact that it did not present the ordinary characters of lobar pneumonia. It was not a catarrhal inflammation of the lungs attendant upon bronchitis, but was a clear manifestation, as respects the pulmonary condition, of senile pneumonia of pneumococcus origin.

An entire lobe may be involved in the aged the same as in a young adult, but not uncommonly the involvement is lobular, and in the matter of diagnosis it is important to remember this fact. The second point concerns the display of infection. Romberg and Passler have demonstrated by experiments on lower animals that when cyanosis appears in the course of acute pneumonia it is due to paralysis of the vasomotor centers in the spinal cord, and that the heart weakness is secondary to this vasomotor paresis. This enables us to understand why in this case death occurred although other evidences of intense toxemia were wanting.

The third element of interest was the seemingly subnormal temperature. It will be recalled that this low temperature of 97.6° was obtained in the axilla. This is not difficult to understand. In consequence of the capillary dilatation that produced the cyanosis, radiation of heat was so rapid that the skin became disproportionately cool and the thermometer failed to reveal the actual state of the body temperature. Therefore, whenever in a case of pneumonia with cyanosis the patient seems fever-free, the temperature within the rectum should be ascertained. This is the second time during the past winter I have seen such a state of things, and both times, as it happened, the pneumonia was in an old person. I can now recall another observation of the kind in a comparatively young woman, so that the phenomenon has no connection with the age of the individual, but is merely due to the state of the capillaries, and primarily therefore to the action of the toxins on the vasomotor centers.

The practical point I desire to make in the treament of acute pneumonia grows out of the effect of infection on these nerve centers. We have long been wont to administer nitroglycerin so soon as cyanosis appears. Elsner in an admirable paper before the American Climatological Association two years ago reported his success in these cases with the frequent administration of diffusible stimulants. He advocated the use of fifteen drops each, every

twenty minutes, of aromatic spirits of ammonia, compound spirits of ether, compound spirits of lavender, and tincture of valerian, keeping them up day and night so long as danger exists. Although in the discussion of his paper I maintained that nitroglycerin does sometimes act as a heart stimulant if not given in too large doses, still I have come to the opinion that as this agent is in itself a vasodilator and is likely to intensify the capillary paresis, it is better to rely upon diffusible stimulants. It should be remembered that their action is very evanescent, and therefore they should be administered from two to three times an hour. Their purpose is to stimulate the failing heart and enable it to overcome the influence of capillary stasis. Alcoholic preparations, as champagne and high wines, are also useful in small, frequently repeated amounts. I apprehend that when digitalis does good in these cases, it is because in addition to reenforcing cardiac systoles it contracts the arterioles and antagonizes the stagnation in the capillaries.

Aside from pure heart stimulants in these cases I know of nothing so efficient as full hypodermic doses of strychnine as a cardiac tonic, one-thirtieth or even one-twentieth every two hours, and in very urgent cases even hourly. Caffeine, by preference the valerianate of caffeine, in grain doses, is also thrown under the skin every two hours or oftener. This remedy not only acts as a cardiac tonic in conjunction with the strychnine, but also exerts a vasoconstrictor effect. I have seen surprising results follow this treatment, the pulse increasing appreciably in strength and the pulmonic second sound becoming louder. This mode of treatment is symptomatic.

We should make attempts to eliminate the toxins, since as yet we possess no certain means of antagonizing them, the favorable reports from antipneumococcus serum to the contrary notwithstanding. I therefore recommend the administration both by rectum and under the skin of a physiologic salt solution. A special apparatus is not necessary, since an excellent gravity apparatus can be constructed out of an aspirating needle and an ordinary fountain syringe. From one to two pints may be allowed to flow slowly into the subcutaneous cellular tissue, and a convenient site for administration is the loose skin of the axilla or the lateral lumbar region. In those cases in which this treatment does good, the pulse grows fuller, stronger, and somewhat slower, while in the course of an hour there is an increase in the volume of the urine. This treatment may be repeated as often as required. A friend of mine who has frequently employed this subcutaneous infusion of salt solution has assured me that he is confident he has seen it save life in these cases. I regret to say

that when I have employed it the condition has been so grave that all means of treatment have proved unavailing. Nevertheless, I believe it should be tried in all cases of severe pneumococcus infection.

The last method of treatment of which I desire to speak is venesection. Although bloodletting is particularly useful in the beginning of sthenic pneumonia in vigorous adults, still it is undoubtedly of service at times in these cases of cyanosis. From sixteen to twenty ounces of blood should be taken from the arm, or the blood should be allowed to flow so long as it remains thick and dark. When the blood becomes red, sufficient has been drawn, even though it does not reach the amount stated. This procedure will sometimes promote the action of the salt infusion. Even when it does not help, it will do no harm, and is not objectionable so far as I can see. At all events such is the gravity of these cases that we should resort to any and all means of treatment that may offer the patient a chance of recovery.

Finally, the inhalation of oxygen is also to be recommended, although it has always seemed to me that its special indication is the mechanical interference with hematosis by extensive bronchitis and such an extent of pneumonic consolidation that life is endangered through the want of sufficient respiratory capacity. When employed the gas should be given freely, and, if need be, continuously.

103 STATE STREET.

A DESCRIPTION OF THE APPEARANCES IN FIVE CASES OF DIAPHRAGMATIC HERNIA.[1]

BY C. A. PARKER, M.D.,
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The comparative frequency with which diaphragmatic hernia is met at autopsy, and the rarity with which the condition is diagnosed during life, make all facts in regard to this very interesting subject well worth careful record. Of 250 cases collected by Leichtenstern, in but five was the ante-mortem diagnosis made. Many congenital cases are of such extent as to be quite incompatible with post-natal existence; yet the evidence of autopsies shows that the number who live and possibly reach adult life is considerable.

The object of this paper is not to present an exhaustive study of the literature of diaphragmatic hernia, but to record the appearances in five cases coming under the writer's observation, with a brief review of the salient features.

Hernia of the diaphragm may be divided into two classes, congenital and acquired, according to time and mode of origin; or, according to structure, into true and false, the former usually having a complete sac, the latter having none.

True diaphragmatic hernia, with a sac, is very rare, as shown by the 276 cases collected by Lacher,[2] of which but 28, or 10 per cent, were of this type, and of the 28, but three were traumatic—a very small proportion, yet such as would be expected from their origin. The congenital form is due to a defect in development of the diaphragm, which may be so extensive as to allow the larger part of the abdominal contents to pass into the thorax and interfere so seriously with the functions of both the thoracic and abdominal organs as to render independent existence impossible. In less severe cases the defect is smaller or of such a nature that the dislocation of the viscera gives rise to no subjective symptoms, and the condition is learned accidentally through a physical examination or at autopsy.

The acquired or traumatic form is usually caused by a shot or stab wound, or indirectly by crushing the thorax or abdomen, or by overaction of the muscle itself, as in vomiting. The direct injury to the viscera by laceration, prolapse, or incarceration, may cause immediate or early death; in less urgent cases the wound may heal and all subjective symptoms subside, though extensive dislocation of the

[1] Read at the Dec. 11, 1900, meeting of the Chicago Pathological Society.
[2] *Deutsches Archiv f. Klin. Med.*, Bd. 27.

viscera remains with little or no apparent effect upon the general health.

Certain parts of the diaphragm, near the orifices for the passage of the aorta, the esophagus, and the inferior vena cava, and in the costo-xiphoid region where the muscular and fibrous tissues are thin or deficient, are relatively weak and favor the development of hernia. These are the common seats of true hernia with a complete sac. Defective nutrition due to lesions of the phrenic and intercostal nerves, causing atrophy of muscular fibers, also predisposes to rupture.

The seriousness of a defect or lesion of the diaphragm depends upon the complications due to immediate or remote injury to the adjacent or prolapsed viscera. Between the two extremes of the congenital and acquired cases which are very early or immediately fatal, and those which cause no symptoms, there are all grades of disturbance. The subjective symptoms often bear very little relation to the extent of injury or prolapse of viscera, though their intensity suggests the degree of interference with function.

Hernia occurs more frequently on the left side. Bryant, of London, says "rupture of the diaphragm occurs only on the left side," in referring to traumatic cases. The liver on the right side serves as a natural barrier to hernia in that portion. The contents of the hernia may be but a small portion of omentum, or include nearly all the viscera of the abdomen. The most common hollow viscus dislocated is the stomach, next the colon, and then the small intestines. Of solid viscera, the omentum comes first in order of frequency, and then the liver, spleen, and pancreas. The great omentum is found more frequently than any other single structure, because of the great range of movement of its free extremity and the tenuity of the tissue.

The subjective symptoms range through various degrees of intensity from immediate collapse and death to occasional attacks of pain or distress in the chest or abdomen. In the traumatic or acquired cases the shock and pain may obscure all other sensations than those directly attributable to the wound itself, with little or no reference to visceral lesions; later, should the injury not prove immediately fatal, the visceral symptoms become more prominent. In the congenital form, the visceral symptoms are always the principal ones; they vary from a slight indigestion with nausea and eructations, due to a displaced stomach or other viscus, to the acute symptoms of a strangulated hernia. Respiratory and cardiac distress may arise from the presence of the hernia compressing the

contents of the thorax. The objective symptoms are obtained by the usual methods of physical diagnosis.

An open or contused wound furnishes evidence of a recent injury; a scar, evidence of former trouble. The abdomen may be unusually sunken and the thorax more than usually distended. Solid organs may not be recognizable in their usual positions, and auscultation and percussion may fail to locate some of the hollow viscera where they normally should be found, while in the thorax may be found a tympanitic stomach or colon, or the liver. Inversion of the patient may increase the displacement and symptoms. Skiagraphy may furnish valuable aid.

The prognosis depends upon the involvement of the viscera. Many of the congenital cases are still-born, or die soon after birth, while others live in health and comfort to old age. In acquired cases, where many important viscera are injured, death occurs very soon; in others, gradual interference with the functions of the viscera causes a fatal termination at a later period. Some have no further trouble after the acute symptoms subside. Contraction of a circular cicatrix on the prolapsed part of a hollow viscus may cause obstruction and strangulation. Contraction upon a less important viscus, as the omentum, may cause gradual atrophy of the incarceration and spontaneous cure of the hernia.

Treatment is limited to a small percentage of cases, because of the infrequency of diagnosis. It is entirely surgical, and may be prophylactic, curative, or palliative. In the recognized cases some present such serious congenital defects that no relief is possible, and in the acquired form the injury to surrounding viscera may cause death from shock and hemorrhage before anything can be done. In a limited number of cases, where symptoms and conditions were such as to demand surgical interference, immediate and late operative procedures have afforded relief. Immediate closure of the wound in the diaphragm, whenever it is accessible, should be done in all cases to prevent hernia. Should the rent be inaccessible and small, the probabilities are, if a hernia forms, that it will be omental, with the prospect of early adhesions to the circumference of the hernial ring effectually closing the opening and preventing displacement of important organs. Both the abdominal and thoracic routes, requiring resection of ribs, have been followed in reducing the hernia and closing the wound in the diaphragm.

Specimens from Cases 1, 2, and 3 are in the museum of Rush Medical College, and were, with notes, kindly furnished the writer by Prof. Ludvig Hektoen, who performed the autopsies. Cases 4

and 5 were observed by the writer in the dissecting-room of the same college.

Case 1 was a woman aged 60 years, with a large diaphragmatic hernia formed of the large and small intestines, great omentum, and stomach. The left pleural cavity contained, in addition to the lung, the first portion of the duodenum, the omentum, and the entire transverse colon, which was adherent to the costal pleura. These structures pass into the pleural cavity, through a circular opening in the left half of the diaphragm, two inches in diameter, located at the anterior junction of the muscle with the left leaflet of the central tendon. The stomach is not twisted upon its axis but passes into the pleural cavity, fundus first and to the right, and so far up as to drag with it the first part of the duodenum, which lies just external to the esophageal opening of the stomach; this has dislocated the liver toward the left so that the lobus quadratus and gall-bladder lie upon the spinal column; the transverse colon lies in the pleural cavity, the cæcum being dragged far to the left, and there are adhesions just below and external to its intrathoracic loop, binding the colon to the costal pleura over the fourth, fifth, and sixth ribs in the anterior axillary line. There are no recent changes, no pigmentation and no thickening in any part of the diaphragm, the margins of the opening being smooth and apparently lined by the united pleura and peritoneum. The left lung lies in the upper fourth of the cavity; it is firm, black, and heavy; the lower lobe is atelectatic, the upper contains a little air. The heart is pushed to the right and lies exactly in the median line.

No ante-mortem history of the case being obtainable, we know nothing of the symptoms, if any, caused by this condition, nor do we know its origin, whether congenital or acquired. The opening is not in the weak parts of the diaphragm, but is found in what may be considered the strongest part. There were no adhesions around the margin of the opening, no sac, and no evidence of external focal violence, no scar in the skin, and no injury to ribs. These facts, taken with the large size of the opening, two inches in diameter, favor the opinion of the congenital origin of the trouble. From the fact that the transverse colon was the only viscus adherent to the walls of the pleural cavity, it is probable that the other contents of the hernia had more or less freedom as to residence, according to the influence of surrounding conditions, as gravity, abdominal or intrapleural pressure, or variations in contents of the viscera themselves. The portion of the diaphragm preserved shows the large opening

with smooth rounded edges and the peritoneum and pleura continuous.

Case 2 was an Italian aged 30, with a traumatic, omental, diaphragmatic hernia. At the post-mortem examination there was noted a distinct scar in the left thoracic wall, which later was found to be directly related to the opening in the diaphragm.

Examination of the preserved specimen shows a circular opening in the anterior left half of the diaphragm, about two millimeters in diameter, with thin and smooth edges, having attached to the entire circumference of the opening a hernia of the omentum which projects about eight centimeters into the left pleural cavity (Plate I, 1). The abdominal and thoracic cavities were probably entirely separate on account of the above adhesions. The opening in the diaphragm corresponds with the scar on the external surface, and the probabilites are that both were produced at the same time and by the same means. The hernia has no sac, is omental, about eight centimeters long and two to three centimeters in diameter, and constricted to two millimeters at the orifice. The clinical history is unknown.

Case 3 was a man aged 35, a laborer, with a traumatic omental, diaphragmatic, and intercostal hernia. On examination of the body there was especially noted a scar four centimeters long in the skin, in the anterior axillary line opposite the eighth intercostal space.

In the left muscular portion of the diaphragm, about four centimeters from its anterior attachment, is a circular opening five millimeters in diameter, with thick, fibrous edges completely filled with a constricted portion of the great omentum continuous with the part below the diaphragm. The omentum is adherent throughout to the ring in the diaphragm, effectually shutting off the pleural from the abdominal cavity (Plate I, 2). Lying on the upper surface of the diaphragm is a lobulated mass of great omentum, approximately 4 x 4 x 8 centimeters in size, one fringe of which is adherent to the thoracic wall at the eighth interspace in the anterior axillary line; it extends through an opening 1.5 centimeters long, parallel with the border of the eighth rib at this point, and can be seen extending to the level of the outer surface of the rib, where it terminates in a scar, immediately beneath the scar seen in the overlying skin (Plate I, 3). The hernia is composed entirely of omentum and has no sac. No information was obtained as to the nature of the wound represented by the scar.

Case 4 is a large diaphragmatic hernia with the liver and gall-bladder in the right pleural cavity. The subject was a white man aged 50, by occupation a cook, and fairly well nourished, with no

external evidence of local violence on the chest or abdomen. On dissection an old fracture of the sixth and seventh right costal cartilages appeared, union having occurred with some deformity, the accident apparently not affecting the diaphragm at its attachment at that part; there was also an old intracapsular fracture of the neck of the femur of the same side, with good union, and fractures of the right tibia and fibula likewise well united. Whether all of these fractures were synchronous I am unable to state, but it is reasonable to suppose that such a severe injury might at the same time produce a rupture of the diaphragm, so that the hernia in question is traumatic rather than congenital. In the central tendon of the diaphragm, involving principally the right leaflet with some of the muscular substance, was an elliptical opening with the long diameter anteroposteriorly, the anterior end being nearer the median line. The opening measured 11.5 x 9.5 centimeters, and was partly occupied by the liver, which extended into the right pleural cavity. The border of the opening was free in the greater part of its extent; posteriorly, although easily made out as a cord-like edge, it was covered by the liver and afforded attachment in an irregular manner to its posterior ligament. The border was even and about two millimeters thick, fibrous in structure, and covered by pleura and peritoneum, which were continuous. There was no sac, and the abdominal and right pleural cavities were practically one; the hand could be passed from the abdomen directly up to the right lung and pericardium (Plate I, 4). At no place was the margin of the opening nearer than two inches to the attached border of the diaphragm. The opening did not occupy one of the weak places in the diaphragm. The hepatic flexure of the colon was hung from the right border of the opening by a firm fibrous band extending from the convexity of the intestine to the pleural surface of the diaphragm. The pyloric end of the stomach with the duodenum was drawn up to the margin of the opening.

The liver measured 15 x 15 x 6.5 centimeters and was somewhat changed in shape by its position. The largest part, involving most of both lobes, was in the right pleural cavity, and so firmly attached by adhesions to the lung and costal pleura that when the subject was placed upright its relation to the diaphragm was not changed. The upper border was even with the fourth costal cartilage in front, reaching the fifth and sixth ribs laterally. The anterior border, usually sharp, was uppermost, and thickened like the normal posterior surface; the superior surface became posterior and lay against the posterior thoracic wall, except where a small portion of lung

substance intervened. The under surface with the gall-bladder was anterior and could be seen through the opening from below. The gall-bladder was normal in size and partially distended with bile; the common duct extended to the duodenum at the level of the opening. The round ligament was free for the first two or three inches from the liver, and was surrounded by the falciform as soon as it entered the abdomen on the under surface of the diaphragm. The right lung extended down to the fourth costal cartilage in front, while behind a narrow lobe extended to the diaphragm, to which it was adherent (Plate I, 5). No clinical history was obtained.

Case 5 is a traumatic, diaphragmatic, and intercostal hernia. The subject was a man aged 60 years, well proportioned and fairly well nourished. Crossing the left costal arch obliquely upward and outward was a scar about four centimeters long, its outer extremity eight or nine centimeters from the median line, being just over the sixth intercostal space; at this point the palpating finger detected a depression large enough to partially receive it; following the scar inward, a marked irregularity of the seventh and eighth costal cartilages was noticed. The skin and fascia were removed, and an opening about one centimeter in diameter was exposed in the sixth intercostal space just under the outer end of the scar and leading directly into the left pleural cavity (Plate II, 6). The irregular cartilages had been severed in an oblique direction, with subsequent overlapping of the sternal ends and ultimate firm union in their abnormal positions. Through the opening and lining its margin extended an incomplete sac with thin, muscular walls, which lay between the skin and ribs and for some distance below (Plate II, 7). This tissue, followed into the thorax, expanded and was more or less adherent to the pleura and pericardium, and also to the periphery of an opening into the diaphragm. This latter opening was in a direction downward and inward from the intercostal opening and measured 2½ by 4 centimeters in diameter. It was elliptical in form, on a level with the lower border of the seventh costal cartilage, and 1.5 centimeters from the attachment of the diaphragm to the anterior chest wall (Plate II, 8 and 9), and was confined to the muscular portion. The margins were thickened and attached to the structures that passed through. As the parts had been disturbed somewhat in dissection, it cannot be positively asserted that the pleural and peritoneal cavities were quite separate, but it is believed that they were.

The hernia consisted of the transverse colon, about twenty inches long, its mesocolon with vessels and part of the greater omentum

occupying a large part of the left pleural cavity anterior to and to the left of the pericardium. Numerous adhesions to the surrounding parts gave the appearance of a sac which was not a complete serous structure, nor would we expect a true sac in a hernia produced as this undoubtedly was (Plate II, 10). There was no evidence of recent pathological changes in the wound or related viscera, such as might have shortened life.

With no ante-mortem history we can only conjecture as to the relation of cause and results; it is probable that the wound in the chest wall, severing the two cartilages, and leaving the opening in the intercostal space, was caused at the same time and by the same means as the one in the diaphragm; the clean-cut ends of the severed cartilages show it must have been a sharp instrument. Besides the hernia of peritoneum through the intercostal space, the protrusion into the same space of some portion of the large intestine is also probable, an interesting and unusual condition.

As far as is known, these five cases belong to the undiagnosed class. In none was there a true sac. The second, third, and fifth were certainly traumatic; the fourth showed in the fractured cartilages evidence of local injury to the wall of the thorax that may have ruptured the diaphragm. There was no evidence of bodily violence in the first case, so that the cause of rupture can only be conjectured. None were in the so-called weak places in the diaphragm. Three were due to stab wounds, and would bear no causal relation to the predisposing factors, and the other two apparently did not. Four were on the left side. As three of these were traumatic, the preponderance of herniæ on the left side in these cases would at first appear to be accidental, although analysis will show it to be due partly to design on the part of an adversary to inflict injury on the heart side, and partly to the fact that the left side is the one directly opposed to the stroke of an opponent's right hand. The relation of the cutaneous scar to the wound in the diaphragm in each of the three cases showed that the thrust must have been from the right hand. The contents of the herniæ were the great omentum in four cases, the stomach in one, the colon and mesocolon in two, the small intestines in one, and the liver in one. The omentum was the most frequently displaced viscus, and was the only one in two cases (Plate I, 1, 2, and 3). Two were complicated by intercostal hernia, in the sixth interspace in one (Plate II, 6 and 7), and in the eighth interspace in the other (Plate I, 2 and 3). In none was there evidence that the injury to the diaphragm was directly the cause of death, and when it is noted that the three most severe cases — the first, the

fourth, and the fifth—reached the respective ages of 60, 50, and 60 years, although the herniæ had undoubtedly existed for many years, the indirect or remote effects were slight.

The possibilities of diagnosis in Cases 2, 3, 4, and 5 were much better than in Case 1, because of the local wounds in the former directing attention to the part. The probabilities of complications from narrowing of the hernial orifice were least in Cases 1 and 4, where the openings in the diaphragm were so large that danger of constriction of the contents was slight (Plate I, 4 and 5). In Case 5, with the whole transverse colon in the thorax, and the two limbs with the mesocolon passing through an opening 2½ x 4 centimeters in diameter, the danger from constriction was serious, though no apparent interference with the nutrition or function of the part occurred (Plate II, 8, 9, and 10). In Cases 2 and 3, contraction had already reduced the openings to a few millimeters in diameter, but as the contents consisted only of omentum, the probabilities are that had the herniæ existed as long as those in Cases 1 and 4, the prolapsed omentum would have atrophied entirely and spontaneous cure resulted.

Case 5 is especially interesting on account of the probability of a hernia of the large intestine through the intercostal opening, thus doubling the chances for constriction of the bowel. Case 3 was similar as far as the complications of intercostal hernia, but as the contents were omentum only the danger was slight (Plate I, 2 and 3).

Probably without treatment directed especially to the diaphragm these five cases lived many years after their injuries. Cases 2 and 3 would not have been materially benefited by operation. No. 4, with the large defect in the diaphragm, certainly could not have been helped. Case 1 might have had symptoms that could be relieved by anchoring the abdominal viscera more firmly in their proper position, but closure of the large opening in the diaphragm would have been difficult or impossible. Case 5, with the transverse colon, omentum, and mesocolon in the left pleural cavity, might have demanded surgical attention on account of interference with the functions of both the colon and the thoracic viscera. As the bowel and omentum were adherent to the pleura and pericardium and the opening in the diaphragm so small, surgical relief could only have been obtained by a combined laparotomy and thoracotomy breaking up adhesions and possibly enlarging the opening in the diaphragm. It is evident that even were a diagnosis possible in every case of diaphragmatic hernia, in only a very limited number would surgical intervention be practicable or advisable.

The number of cases reported in this paper is quite too small for a comprehensive study of diaphragmatic hernia, yet the data obtained by a careful analysis of the cases cited, supplemented by those of numerous other observers, in the writer's opinion fully justify the following conclusions:

1. Diaphragmatic hernia is of fairly frequent occurrence; the diagnosis is more rarely made than in almost any other known surgical condition, being limited to two per cent of the cases.

2. Absence of a sac is the rule, it being present in but ten per cent of all cases, and in only about one per cent of traumatic.

3. Although the so-called weak places in the diaphragm predispose to hernia in some traumatic cases, in shot and stab wounds no such causal relation exists.

4. Stab wounds are usually on the left side because of the desire of an adversary to inflict injury on the heart side, and because it is the side naturally opposed to the stroke from an opponent's right hand.

5. The contents of the hernia are most frequently omental, but may include almost every solid and hollow viscus in the abdomen.

6. A complicating intercostal hernia is not infrequent, having occurred in two of the writer's five cases.

7. Though many of the congenital and acquired lesions of the diaphragm are so extensive as to be quite incompatible with life, yet gross defects in its structure, with dislocation of many important viscera, may occur with little or no disturbance of health.

8. The diagnosis is aided by the presence of local scars or lesions directing attention to the diaphragm. Skiagraphy may also be of value.

9. The *immediate* danger in large wounds of the diaphragm is due to injury of adjacent viscera; the *remote* danger, from contraction of the opening and constriction of the contents, is greatest in small wounds.

10. Spontaneous cure may result from contraction of the orifice and atrophy of the contents composed of unimportant structures.

11. The treatment is surgical and is limited to a small percentage of cases, on account of (*a*) the infrequency of diagnosis, (*b*) severity of gross lesions and symptoms, and (*c*) inaccessibility of the part injured.

12. In the examination of all wounds in range of the diaphragm, the possibility of injury to that muscle should be remembered, and all wounds in its structure should be closed at once, if possible, to prevent the development of hernia.

DESCRIPTION OF PLATES.

Fig. 1, Case 2: Upper surface of the left portion of the diaphragm, showing the orifice transmitting a part of the great omentum.

Fig. 2, Case 3: Upper surface of section of the left side of the diaphragm attached to the eighth and ninth ribs, showing the opening transmitting the great omentum, one prolongation of which extends to an opening through the intercostal muscles and fascia.

Fig. 3, Case 3: Same as Fig. 2, showing the portion of omentum extending through the opening between the eighth and ninth ribs.

Fig. 4, Case 4: Diaphragm seen from below with liver and gall-bladder in the large hernial orifice. The round ligament of the liver is seen in the center, and a fibrous cord extending from the hepatic flexure of the colon to the margin of the opening is seen at the left.

Fig. 5, Case 4: The right wall of the thorax has been removed, showing the compressed right lung, the heart, and the liver and gall-bladder in the right pleural cavity. The round ligament of the liver is also shown.

Fig. 6, Case 5: Sternal portion of ribs and costal cartilages. The dotted line marks the direction and place of severance of the costal cartilages; the circle *a* the position of the intercostal opening.

Fig. 7, Case 5: Sternal portion of ribs and costal cartilages, with intercostal muscles showing dislocated cartilages and a thin vascular tissue, part of an incomplete sac (probably formed of omentum), protruding through the intercostal opening.

Fig. 8, Case 5: Inferior aspect of diaphragm with hernial opening.

Fig. 9, Case 5: Internal surface of the chest wall, showing incomplete sac, *b*, extending from the diaphragm to the intercostal opening.

Fig. 10, Case 5: Hernial contents, loop of transverse colon, portion of sac *a*, transverse mesocolon *b*, and constricted portion of bowel *c*.

16 S. Homan Avenue.

PLATE I.

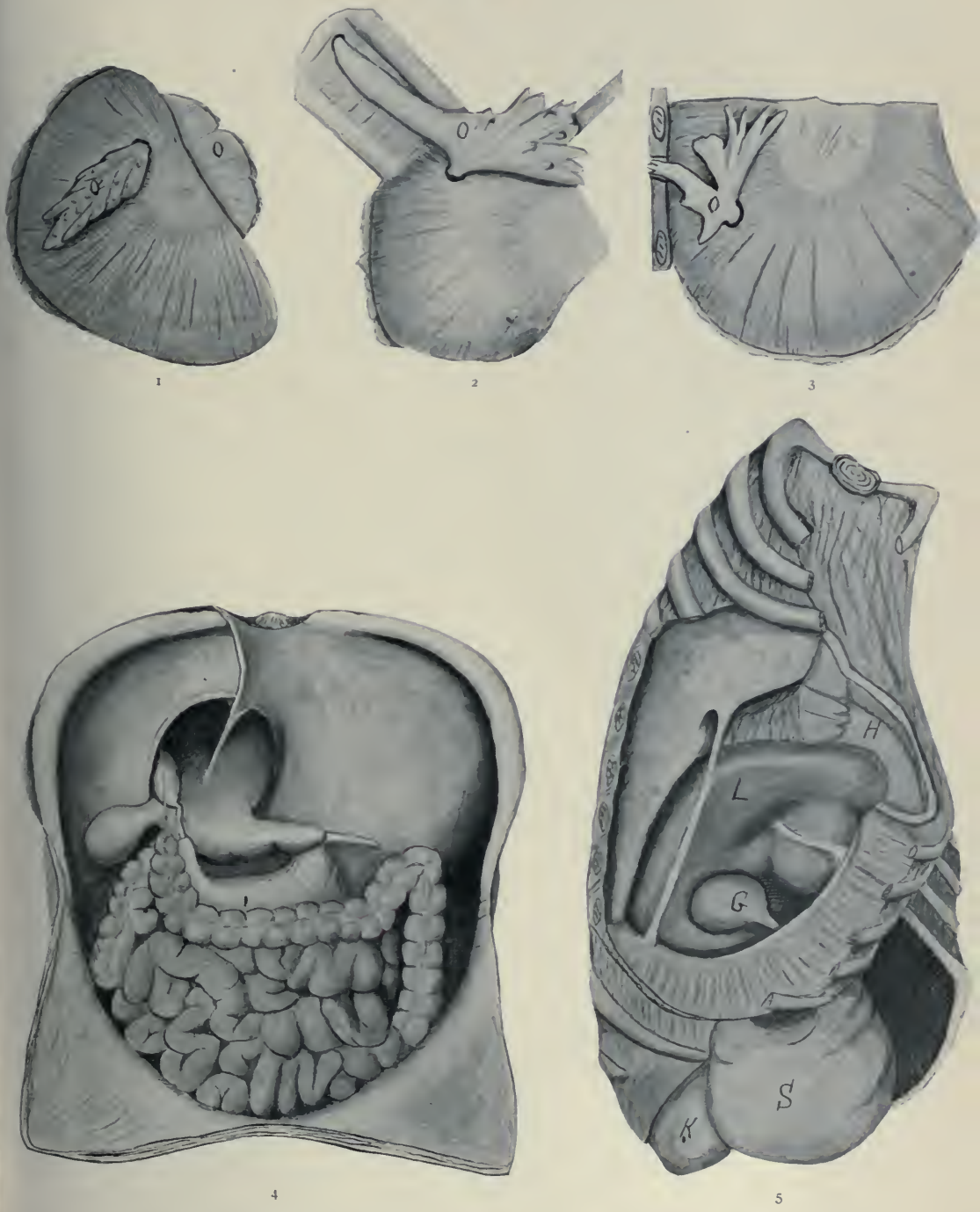

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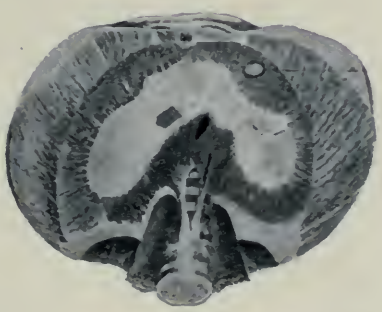
PLATE II.

6

7



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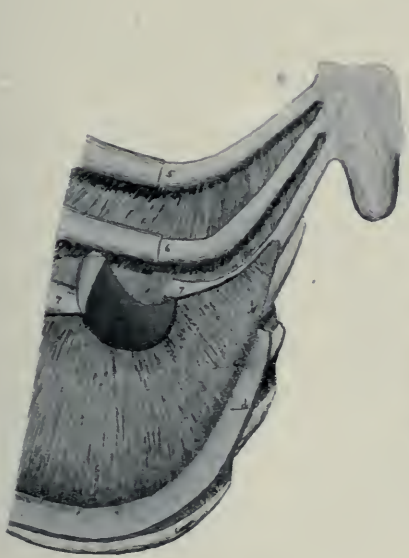

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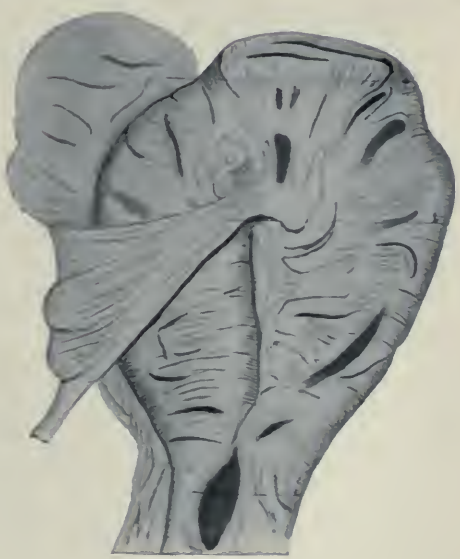


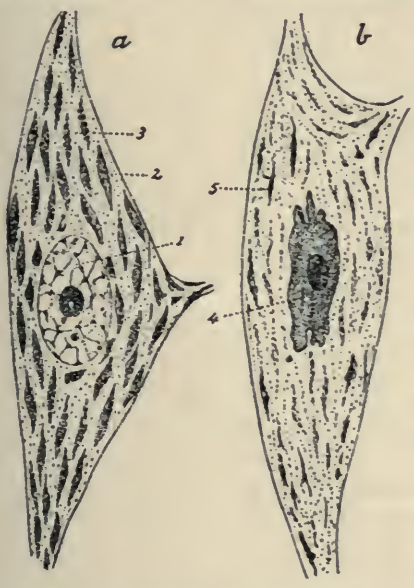
10

NEURASTHENIA.

BY SANGER BROWN, M.D., CHICAGO.

It may be assumed that in health the neurons are all the time appropriating from the vital fluids circulating among them an organic substance, which in passive states is utilized in maintaining in them a condition of tone or latent energy, and which during activity enables them to render this energy properly manifest.

In the discussion of this particular phase of neurophysiology, it would be eminently convenient and conducive to clearness, in my opinion, if some single term were available satisfactorily descriptive of this substance; and accordingly, for this purpose, I have ventured to coin the word "neurenergen,"[1] which I would define as an ultimate form of organic matter contained in the neuron, through whose agency it is convertible into waste products and the various manifestations of nervous energy peculiar to its structure. It bears, indeed, much the same relation to neurophysiology that lines and points bear to mathematics, each representing a mere concept. When, however, the vast benefit which has accrued to general medicine from the germ theory and to neurology from the neuron doctrine is remembered, toleration and perhaps even respect for a mere hypothesis may be entertained.



Let me now invite attention to the accompanying illustration: *a* represents a motor cell from the lumbar region of the spinal cord of a dog which had not recently taken any considerable exercise; while *b* represents a cell from the same part after fatigue. Here, it is fair to assert, there has been a discharge of energy coincident with a metamorphosis—apparently retrograde—of cell contents; essentially, in fact, of the substance which I have named neurenergen.

It is admissible, I think, to transfer the doctrine which these

[1] Derived through the Greek from *neuron*, nerve; *ergon*, work; and *genesis*, source.

figures teach to neuron bodies or nerve cells generally, no matter what their peculiar function may be. Thus I recently made the following observation: two well matched and skilful chess players, between whom there was a wholesome rivalry, sat down to a contest at two and played steadily till five-thirty, each one, in the meantime, exercising all the intellectual concentration of which he was capable. During the first twenty minutes the calculations were rapid, sound, and far-reaching, but at about the close of the séance a marked decline in the character of the play was only too obvious. Pieces were left directly exposed for several consecutive moves, and even the most patent possible check was overlooked by both players. That the neurons concerned in the prolonged intellectual struggle had undergone changes similar to those delineated in figure *b* is, in my opinion, a not unreasonable supposition. It is not claimed for a moment, however, that the figures here shown afford anything like an identification or demonstration of this substance. They are merely intended to give color and support to the hypothesis.

Without wishing to express disapproval of the idea, I shall, for the present, ignore all contention implying that any fixed anatomical elements outside the neurons participate materially in the immediate development of nervous energy.

According to the foregoing concept, then, there is in health a current of neurenergen constantly flowing into the neurons, which is no less constantly transformed by them into energy and waste products. This current is at its minimum during repose and at its maximum during activity, and furthermore subject, no doubt, to wide individual differences; there must be an available neurenergenetic reserve which may be drawn upon as occasion demands.

I shall not now attempt the further general development of this doctrine, but merely suggest in passing that it offers a rational explanation for many morbid nervous phenomena besides those now under discussion, notably those of epilepsy and the tremors; while it finds application in conditions as widely separated as the toxic and toxemic paralyses and insanity.

To make a special application of this doctrine, it may be postulated that in neurasthenia, on account of overstimulation, the neurons giving rise to the symptoms have lost to a considerable extent their recuperative power—that there is, in fact, a standing deficit in their neurenergen, and that they remain therefore in some degree permanently in the condition of the cell shown in *b*. Or, in other words, inasmuch as the salient feature of neurasthenia consists rather in the inability to sustain motor or mental effort than in

derangement or disorder of the energy produced, the cause of the symptom may be more reasonably referred either to a deficiency of the available supply of the neurenergen or to weakness of the neurons, whereby they are unable to continue its proper metamorphosis, than to some morbid quality of these elements.

Clinical experience, moreover, would appear to some extent to indorse this view of the pathology, because some sort of excitement of the neurons, which might be expected to produce in them a condition of more or less permanent exhaustion, appears to be the most potent cause of the disease, while tranquillity rather than drugs or nutritional measures is the first essential of successful treatment.

The exciting cause, then, may be looked for in those influences which demand an exhaustive expenditure of nervous energy beyond the capacity of coincident and consecutive restoration or repair. Within the limits of this paper these can only be referred to in the most general terms. However, it is readily perceived that they are all the time rapidly increasing in professional, business, and social life. The march of scientific progress is so rapid that the professional man has to maintain a high state of mental tension in order to keep pace with it, notwithstanding the mitigation afforded by specialism. Refinements in business methods, with the development of devices providing means of constant intercommunication, expose the business man to incessant drafts upon his capital of nervous energy; while keenness of competition, the added responsibility of success, as well as the anxiety and depression incident to failure, all contribute to neurenergenetic bankruptcy. Indeed, in this connection, the excessive indulgence in secret vice, as illicit venery, sometimes practiced by the overworked business or professional man, might consistently be termed neurenergenetic defalcation, or in lesser degree, peculation. But if the increasing complexities of modern civilization offer a menace to the neurons of business and professional men which may fairly excite concern, what shall be said of their effect upon the neurons of the modern society woman, with her perpetual breakfasts, luncheons, receptions, and card parties; her clubs with their educational, municipal, and philanthropic departments? And even under the weight of these great burdens, yielding to primitive impulses, she may attempt to divert some energy to the family circle, as, for instance, personal supervision of the housekeeping, the training and education of her children, etc. In her efforts to meet all these demands, besides many others which I have not enumerated, her liability to neurasthenia is positively alarming, and accordingly, sooner or later, she is likely to register at a rest-cure.

Some of the severest cases of neurasthenia develop rather rapidly after an emotional or physical shock, and when these causes act coincidently their influence is powerfully intensified. The symptoms supervene sometimes within a few hours, sometimes within a few days or weeks, of the exciting cause. There may or may not be some local demonstrable tissue injury, as contusion or fracture. Railroad accidents furnish conditions peculiarly favorable to the united action of these causes, and on account of the volume of railroad travel they contribute largely to the list of these cases.

Inasmuch as the symptoms of neurasthenia are, in any event, mainly subjective, it is many times well-nigh impossible to form a correct estimate of the actual condition of the patient, especially in the face of impending litigation; and when the truth of the statement is admitted, as I believe it deserves to be, that all of the exciting causes of neurasthenia likewise favor the development of hysteria, and that the latter is frequently a conspicuous complication of the former, the far-reaching influence of prospective damages upon the severity and persistence of the symptoms may be the more readily appreciated. Notwithstanding all these very weighty considerations, however, I have not only once but repeatedly seen undoubted cases of severe and protracted neurasthenia result from these causes, alone or combined, when there could be no possible motive for deception.

Now and then cases are met with in which well-marked symptoms have developed independent of exciting cause—cases which, in the present state of our knowledge, may properly be termed idiopathic.

As to predisposing causes, age may be first considered. The active period of adult life furnishes a large majority of the purer cases, mainly because at this time the individual exposure to exciting causes is at its height. Although it does not articulate very nicely with the division of the subject just announced, I will here make the somewhat paradoxical statement that a rather exceptional endowment of systemic qualities upon which a satisfactory state of the general health depends has to be presupposed in all cases of neurasthenia; otherwise the influence which finally results in its production would first produce some other sort of disease demanding a corresponding compromise in the diagnostic designation. For as I understand the term neurasthenia, it is only properly applicable when the symptoms cannot be regarded as the result of some other well-recognized morbid entity. However, its associations—if not, indeed, affiliations—with hysteria are often so intimate as to make

any attempt at classification within the limits of established nomenclature unsatisfactory. Now one, then the other, predominates. If cases not manifestly marked with hysteria be excluded, it occurs oftener in men than in women; otherwise, I think the order of frequency would be decidedly reversed.

There is a large and perhaps increasing proportion of individuals in every civilized country, mainly among the middle and upper classes, in none of whose organs actual disease can be demonstrated. They are not insane nor yet imbecile; but they lack endurance and stamina to such an extent that they are always more or less dependent on some one, no matter what educational and hygienic advantages may have been extended to them. The condition is permanent. It may have been present from birth, in which event it might properly be regarded as congenital or hereditary; or it may have resulted from some severe disease occurring during the period of development. None of these cases, in my opinion, however neurasthenic, should be included in the present discussion, and if they be ignored, the influence of heredity in neurasthenia is certainly not very marked.

Temperament, in proportion as it prompts the individual to expose himself to the exciting cause, would perhaps have to be reckoned with as an indirect predisposing etiological factor; but when it is remembered that the cases above referred to resulting from shock observe no very marked discrimination determined by temperamental differences, this element cannot be accorded a very prominent position as a predisponent.

The symptoms, even exclusive of such associated conditions as hysteria, are sufficiently diversified. For convenience of discussion only, though as a matter of fact they are all more or less intimately combined, they may be separated into motor, sensory, mental, and vegetative—if, indeed, it be permissible to speak of digestive and circulative disturbances as vegetative.

Motor.—The purest example of this symptom is seen in the so-called "stale" athlete. His muscles may still appear firm and prominent, but feats of strength and agility which formerly he could repeat in rapid succession and with pleasure, can now, perhaps, be performed once or twice at most, and then only at the cost of distressing effort and subsequent exhaustion. Generally in practice, while motor symptoms are distinct, their prominence is more or less relieved, if, indeed, they are not considerably obscured, by other phenomena, though women frequently enough complain that they are greatly exhausted by making the most simple toilet, walking

across the floor, or even sitting up. Apart from hysteria the reflexes are more likely to be minus than plus. Intention tremor and inaccuracy of movement rapidly supervene upon voluntary effort, but there is never true ataxia, spasm, or paralysis, nor are the sphincters ever involved.

Sensory.—Unlike its associate hysteria, neurasthenia presents no pathognomonic sensory symptoms; indeed, none which are very strongly diagnostic. In severe cases rather pronounced numbness of the extremities, extending to the knees and elbows, may alarm the patient until he is reassured, and the same may be said of ulnar paresthesia. The head is pretty generally complained of. The suffering is voted much worse than pain, and many patients express a strong conviction that their brain is paralyzed. This is probably suggested by the vivid sense of mental impotence which supervenes when a sustained intellectual effort is made. A dull, distressing sensation relieved by pressure, extending from the suboccipital region ("base of the brain") to the lower angle of the scapulæ is very common.

Mental.—Frequently the first and most troublesome annoyance consists in maintaining the attention while reading. The patient cannot continue more than a few moments with satisfaction. Memory impressions are so transient that the thread of composition soon separates, and finally, after repeated attempts at concentration, the exercise has to be abandoned. The same is true of other forms of mental effort. Confusion, fatigue, and failure ensue when a mental or intellectual process demands nice discernment and extended coordination of ideas. Apathy and inability are often combined. The generous perseverance of members of the family to induce the patient to participate in his former mode of diversion may provoke an unexpected display of temper. There may be no more depression than might be fairly set down to the discouragement naturally resulting from conscious incapacity. The simple melancholiac, on the other hand, does not know why he is depressed. He seeks solitude from a strong, innate dread of meeting people, not because he wishes to avoid fatigue; neither is it for the latter reason that his responses to simple questions are delayed or that he often shamefully neglects his personal appearance. The neurasthenic may not be able to sit through a play without finally suffering greatly from fatigue, mainly mental. The melancholiac suffers no exhaustion from such an effort, but the performance no longer appeals to him. His capacity for enjoyment in this and all other directions is more or less profoundly reduced, and not, apparently, from a too ready exhaustibility of the neurons concerned.

The Special Senses.—Ocular fatigue has already been mentioned. Otherwise disturbances in this direction are not very notable or characteristic. I have met with several cases in this disease in which the sense of smell seemed too strongly accentuated — the patient would get off a car, for instance, rather than pass too near a garbage cart, which I could not, as I might have expected, fairly charge to hysteria.

Vegetative.—In many cases sleep is fairly good. Insomnia in some form occurs often enough, however. It is rarely very severe. Most frequently it is the sort in which the patient falls asleep promptly on retiring, but awakens too soon and then remains awake for several hours. This is perhaps somewhat suggestive of neurasthenia; but long, heavy, unrefreshing sleep without a satisfactory obliteration of consciousness is quite strongly diagnostic of it.

Signs of disordered gastric and intestinal digestion are common, and probably atony of the organs concerned is very often present, resulting in some degree of ptosis in them. An increased tendency to constipation may be expected. Rarely is there diarrhea. The urinary solids are almost invariably diminished from an eighth to a quarter, and so is the water, apparently without a corresponding variation in the quantity of food and drink taken or discharged by the bowels or sudoriparous glands.[1]

Sometimes a vague, rarely a more definite, consciousness amounting to a sense of general pulsation disturbs the patient. The arterial tension, if notably changed, is as a rule increased. Cold extremities, increased palmar and axillary perspiration, disturbance of the general thermal sense, and occasional dermography are probably all related to a neurotic disorder of circulation.

TREATMENT.

Severe cases, occurring in women, whether complicated with hysteria or not, are most successfully treated by a strict application of the rest cure, which, for many reasons, cannot be detailed here. A few cardinal features of it may, however, be mentioned. No success can be hoped for unless the patient freely consents for the time being to become the subject of an absolute despotism; a state something like mental hibernation should be encouraged, except that a prevalent air of cheerfulness and hopefulness must be ever present. Absolute rest in bed, milk diet for a few days, until a "milk pas-

[1] I have frequently demonstrated a decreased renal elimination in these cases, but have never made accurate estimations in the sweat and feces.

sage" is obtained and presumably the alimentary tract is in condition for it; then force feeding with massage and aloes (when needed) to promote metabolism and elimination.

Peculiar natural qualifications, both on the part of physician and nurse, are essential to the efficient and not disagreeable maintenance of necessary obedience and cooperation of the patient. During the early weeks the physician should make at least daily visits, and altogether, inasmuch as the treatment has to be maintained about six weeks, it involves considerable expense. This last item has led to conditions which certainly need discussion by the profession. In the first place, it may be said, inasmuch as this method was developed and established by Dr. Weir Mitchell, nearly every one who can afford to pay for its thorough application goes directly to Philadelphia, where he not unnaturally expects to get the best service. The result of this has been the establishment of rest-cures in various parts of the country by nurses more or less well qualified for the work, who undertake to give what they call the rest cure at popular prices. Mainly because these proprietors believe, and perhaps rightly, that the added expense would prove fatal to their patronage, while stoutly maintaining that they only take cases by medical prescription and treat them strictly under medical supervision, the patients—and the public too—in some way soon come to understand through them that the services of a physician are superfluous and govern themselves accordingly. Thus it often happens that many of their patrons never see a physician during their sojourn in these institutions, and indeed may go there solely upon the recommendation of lay friends and acquaintances. It is much easier to perceive the numerous objections to this state of affairs than to suggest an efficient remedy for it. I cannot undertake to discuss it further in this place.

Among women even there are marked differences, probably depending upon temperament and early training, in the readiness with which they adapt themselves to the rest cure. Men can almost never tolerate it in its purity. After all, in practice, only a small minority of cases is treated according to this method. Having in mind what ought to be done we utilize such sources as are available. After determining the course to be pursued, it is essential that the physician secure and maintain absolutely the confidence and obedience of his patient. Sometimes women may be induced to follow directions faithfully in their own homes with great benefit, either with or without the services of a trained nurse. They should have a written schedule supplied to them and adhere to it strictly. Much

outdoor life should be required in most cases, with regular, graduated exercise and a generous diet, all interspersed with regular and frequent periods of rest. If a fair amount of outdoor exercise can be taken, massage may often be dispensed with. The patient should never get far away from a ready resting-place. On this account city parks are excellent, as a good seat is always at hand, so that fatigue may be avoided. Besides, the walks are dry, the air fresh, and there is more or less wholesome diversion always at hand.

The neurasthenic business or professional man may shorten his hours. A great deal may be accomplished from ten to twelve and from two to three, filling in the interim with judiciously appointed rest, outdoor exercise, and diversion. Wheeling and golf have done much for this class of sufferers. Men, as a rule, have enough bodily strength to follow these sports in moderation with comfort. A proper sort of vacation usually affords prompt relief. Life in a rough camp or on an Atlantic liner, providing there is an abundance of suitable food, fresh air, diversion, and absence of all sources of anxiety, affords ideal treatment for many cases, but it often happens that the time spent in this way is too short, and a relapse occurs.

The physician who, by prolonged observation and careful study of a neurasthenic, correctly estimates his capacity and limitations, and by dint of patient persuasion, education, and eloquence induces him to adopt and adhere to a mode of life consistent with the fullest measure of success, comfort, and happiness possible to him, earns and sometimes enjoys the grateful appreciation of his patient. He never receives compensation at all commensurate with the value of his services.

The changes observed in the bodies of neurons after the excessive administration of arsenic suggests its employment as a specific in neurasthenia.

100 STATE STREET.

THE DIAGNOSIS AND VARIATIONS OF EPILEPSY AS ORDINARILY RECOGNIZED.[1]

BY HAROLD N. MOYER, M.D., CHICAGO.

Apparently there is no condition easier of recognition than epilepsy. Its features are so characteristic—the fall, frothing at the mouth, the convulsion, biting the tongue, succeeded by a period of relaxation and a slow return of consciousness; with such a history the merest tyro can make a diagnosis. A typical history is not always obtained, and it is to be remembered that the diagnosis is almost invariably made upon what the patient or his friends tell us. If, at the time the patient comes under observation, there have been at the most one or two or three convulsions, they may have occurred when the patient was not under observation, so that the sequence of events is practically lost. It is only infrequently that the family physician observes the patient in a convulsion, and the consultant almost never, excepting where they are very frequent. There are comparatively few diseases in which physicians must rely wholly upon the observation of others for an account of the disease, but in epilepsy the most acute observer would fail to pick out a number of epileptics from a group of healthy persons, in the absence of a history of convulsions.

Epilepsy is to be regarded only as a symptom which is to be classed with chorea, but with this difference: the choreic patient presents more or less constant evidence of his disorder during the entire course of the disease, while the epileptic during the intervals between seizures is quite normal, except that he is liable to periodic disturbances of the equilibrium of the nervous system. This liability is what constitutes the epileptic condition, if you please to put it, the disease epilepsy.

There are some special difficulties in the diagnosis of epilepsy, due to the fact that any of the elements of the seizure which are usually present may be absent; perhaps the most persistent and the most constant is the loss of consciousness, yet this may be absent. Even when present, it may be of such short duration that a skilled observer might be left in doubt. The convulsion may be absent as well as the initial cry, the biting of the tongue, or other gross manifestations of the severe attack. Convulsive seizures and falling are almost invariably accompanied by loss of consciousness. In my

[1] Part of a symposium on epilepsy read at a joint meeting of the Chicago Medical Society and Chicago Neurological Society, April 3, 1901.

own experience I have seen but one case in which consciousness was retained during a typical convulsion.

The definition of epilepsy given by Donath seems to be as near satisfactory as any that has been proposed: "An abnormal excitement of the cerebral cortex which increases suddenly, is periodical in its manifestations, has a typical course, and disappears rapidly. Whether the attack occurs without unconsciousness and amnesia depends upon the strength and extent of the irritation." In the light of such a definition, any classification can only be regarded as provisional. We have long been accustomed to speak of the epileptic seizures in relation to their severity; such a division is highly artificial, although of some practical utility.

The typical, fully developed convulsion, which is spoken of as *grand mal*, with its falling, tonic and clonic convulsions, followed by sleep, expresses the fully developed type of the malady and covers the ordinary conception in the medical mind of an epileptic seizure. *Petit mal* is usually attended by a slight loss of consciousness, which is often so brief that the patient does not fall; there is usually a convulsive stage, though it may be limited to a very few muscles, such as drawing of the face or turning the head; there is a sudden pallor, an alteration in the pupil, and other features which characterize the more severe attack. As a rule these slighter convulsive seizures occur with greater frequency, and they have been generally regarded as much more unmanageable than the severe attacks. Those suffering from the *petit mal* are more liable to mental disturbances, this being probably due to the greater frequency of the attacks.

A special variety of epilepsy is the Jacksonian, which is characterized by convulsive attacks affecting one single group of muscles, and frequently not attended by a loss of consciousness, the involvement of the cortex beginning at some localized area and extending by continuity. The syndrome of Jacksonian epilepsy is by no means clearly demarcated from other forms of epilepsy, but we may include in it that group of cases in which the irritation starts in some definite part of the cortex and in which the symptoms are usually partial, though they may become general.

The greatest difficulty in the diagnosis of epilepsy is in the so-called equivalents. These may be simply psychical states as shown in automatic acts, alteration in the emotions, or dream states. They may consist of alteration in the sensory perceptions, the so-called auræ, which do not go on to the development of a convulsion. Such abortive seizures are very difficult from the standpoint of diagnosis, and we would especially emphasize the importance of bearing in

mind the question of epilepsy when in the presence of any recurring nervous symptom which lasts for a brief time and which returns at irregular intervals with all of its original characteristics.

The so-called epileptiform seizures which occur in organic disease of the brain and in general paralysis of the insane, ordinarily do not present any difficulty in diagnosis, because of the accompanying symptoms of organic disturbance; but it is well to bear in mind that sometimes such epileptiform seizures, instead of occurring in the course or at the end of a progressive organic trouble, frequently initiate the process. In such a case a diagnosis of epilepsy may be made when one really has to deal with a more serious condition. I know of no means of distinguishing the epileptiform convulsive seizures of organic from ordinary epilepsy. It is possible that they are identical in the fact that they have a common origin in irritation of the cerebral cortex.

Uremic convulsions occasionally present all the characteristics of epilepsy. I have seen a patient with acute nephritis suddenly and without warning pass into a tonic convulsion, followed by clonic contractures of the muscles, complete loss of consciousness followed by sleep, and a complete clearing of the intellect—all within the space of one-half hour. There was nothing to distinguish such an attack from one of pure epilepsy, and a diagnosis would scarcely have been possible if the urine had not contained an enormous quantity of albumin. As a rule the uremic unconsciousness is much more prolonged and the convulsions show a remission, which is not true of epilepsy. There is a marked similarity between what is known as the status epilepticus and ordinary uremic coma. An examination of the urine in these cases of course clears the diagnosis in almost all instances.

Hysteroepilepsy is not epilepsy at all, but simply hysteria. It is most unfortunate that the word epilepsy ever became associated with hysteria in describing the convulsive attacks which accompany the more severe forms of the latter disease. The hysterical attack is to be distinguished from the true epileptic by the difference in the emotions of the patient. There is commonly in the hysterical form no initial cry; the movements are at least coordinate if they do not have a purposive character. The tongue is not bitten, the patients do not injure themselves in the fall. The duration of each convulsion is several hours, with frequent remissions. Consciousness is generally preserved. Perhaps the most characteristic difference is in the position of the hand. In epilepsy the thumb is invariably drawn into the palm and the fingers clasped over it, while in hystero-

epilepsy, principally in the beginning of the convulsion, the fingers are usually extended. Indeed, extension characterizes the convulsions of hysteria, while flexion is the invariable attitude of epilepsy. This characteristic attitude of the hand is so marked that upon one occasion it revealed a case of feigned epilepsy in a penitentiary that had eluded the most searching inquiry.

In conclusion, I would especially emphasize the necessity of early diagnosis. When a case is before you in which there is a history of a convulsive seizure, do not try to find a reason for thinking it is not epilepsy, referring to some disturbance of the stomach, or the digestion, or the liver; or, if it occur in a child, do not suggest that it will outgrow the affection. We know that there is a natural reluctance on the part of the physician to make a diagnosis as grave as epilepsy, but a suspicious seizure should be given its due weight, as success in treatment largely depends upon its beginning promptly before a large number of attacks have occurred. The welcome assurance to parents or friends that a convulsive seizure is of only minor importance will lead to a false sense of security and a neglect of treatment until the disease has become seated and the secondary changes incident to it have developed, when the prognosis is quite hopeless.

PROSTITUTION: ITS SUPPRESSION OR CONTROL?

BY F. R. STURGIS, M.D.,
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A short time since Dr. Morrow read a paper before the Medical Society of the County of New York upon the subject of prostitution, in which he called attention to the evils syphilis and other venereal diseases wrought upon the community as a plea for the suppression of these diseases. As supplementary to his paper I have written this article, devoting my attention rather to the question of control than to the ravages of the disease.

One fault which medical men are apt to commit in discussing this subject is of exaggerating the dangers that may arise from both syphilis and gonorrhea. This error was severely criticized by Dr. Birkbeck Nevins, of London, touching a statement made by Dr. A. L. Gihon, medical director of the United States Navy, before the American Public Health Association, and published in the *Sanitarian* for January, 1880. Dr. Gihon's views are certainly extraordinary. He says: "A few hundred human beings have died of yellow fever this summer. How many thousands blighted by venereal disease have during the same time crawled from the wayside into obscurity to linger silently for years, but then as certainly to die before their time!" The influences that venereal diseases exercise upon the health of mankind are certainly bad enough, but they are nothing like so serious as to warrant such statements as these. Neither acquired syphilis nor gonorrhea can fairly be considered as fatal diseases, notwithstanding that there appears to be a tendency nowadays to attribute many obscure deaths to a probable or possible antecedent venereal affection. We may safely say that at present it is not proven that either syphilis or gonorrhea plays a very important part as a cause of death in any community, although they may and frequently do entail years of suffering both upon the guilty and the innocent.

The questions to which I shall confine myself particularly in this paper are: (1) What women are dangerous to the public health? and (2) What should be done in the matter of control?

Public women may be divided, broadly speaking, into two classes, the professional and the amateur; the professional being the bawd who openly and avowedly plies her trade, while the amateur prostitutes herself occasionally and clandestinely either for money

or from inclination, most probably for the former. These two are generally distinguished by medical statisticians as those who live in houses of prostitution and those who live in private rooms or chambers, the former being sought by the male, the latter going abroad to seek her prey.

Statistics bearing upon the element of danger are frequently unsatisfactory, because care has not been exercised in discriminating between those cases which are treated in hospital and those which are treated in private practice; there is a great difference in the deductions to be drawn from those two classes of statistics. In hospital, as a rule, we find the public woman; in private practice, the clandestine harlot, whether she be a private mistress or an ostensibly virtuous woman, occupied with respectable business during the daytime, and devoting her evenings to the pleasures of the body. In the former class of cases syphilis is comparatively rare, for the reason that the women of this division of prostitutes are seasoned. They have had their earlier syphilitic lesions, those which are the most dangerous to the community, and when they come to the hospital it is with the stigmata of old syphilis, or else with some gonorrheal or chancroidal affection, affections which have nothing to do with the syphilitic taint. On the other hand, in private statistics are included those who are young and may have just begun their career of folly, and who are prone to show the earlier and more contagious symptoms of syphilis. I believe that of the two the seasoned prostitute is the safer as regards syphilis and the more dangerous as regards gonorrhea or chancroidal affections, whereas the opposite obtains with the younger and clandestine prostitute.

The consensus of opinion seems to be that repression has invariably failed of its object; it neither gets rid of the prostitute nor does it mitigate the spread or severity of venereal diseases. The same is true of all forms of wrong-doing; if you drive vice out of sight it only finds its local habitation in some other place, with the probable result that it becomes more widely spread and a greater scandal than it would have been if it had been openly recognized and kept under control. The same thing occurs with contagious diseases. If the existence of a contagious disease is considered a punishable offense people will hide themselves and their relatives from sight, with the probability that the contagion will be more widely spread. If, on the other hand, they are not frightened by repressive measures but are instructed as to the dangers which come from the concealment of their disease, those maladies are kept under control, and while not stamped out are amenable to treatment, and become less severe.

Some years ago we had an illustration of this point, when, prostitution having been declared an evil to be suppressed, the effect was to drive this class of women from the houses and from the quarters which they inhabited, and where they were perfectly well known and susceptible of control, into tenement houses and private apartments. This is always the rule where repression is attempted.

If my position is correct, the alternative left is that of control. How shall that be accomplished? Remember, we have two classes of prostitutes to deal with—one the public, and the other, so to speak, the private or hidden one; the latter probably the more dangerous and the more difficult to reach.

I would suggest two ways of dealing with the first class, and correlatively also with the second: first by segregation, second by inscription, and third by inspection. By segregation, they should, as far as possible, be collected or persuaded to live in certain quarters of the city. This was the rule, so far as can be ascertained, in the early history of prostitution in the city of New York. In the next place every public bawdy house should be inscribed and registered in the police station of the precinct in which the house is situated, with the name of the woman keeping the house, the number of inmates and their names, and the name of the owner of the property, if it be a hired house. Moreover, if perchance, as happens in the case of many houses, there are women who are in the habit of being called in from the outside, the woman of the house should furnish to the captain of the precinct the names and residences of all these women who form, so to speak, the volunteer contingent. If this volunteer army of prostitutes is in the habit of being called on regularly and periodically for service in the house, they should be considered as inscribed prostitutes and entered as such in the precinct books. The enumeration having been made in each precinct, each housekeeping bawd should be required to pay a license to the city for the privilege of beginning her business, and in addition a monthly fee, not only for each woman who lives in her house, but for each woman she is in the habit of calling in from the outside. What should be paid for each class is a matter of administrative detail. Each woman, regular or volunteer, should then receive a card on which is inscribed her name, age, and residence, which she should be required to show to the police whenever called upon, and which she should take to the dispensary on examining days.

In each precinct—for we shall divide the city according to police precincts for the purpose of controlling the prostitutes—there should be a weekly examination of these women; not in their houses, for

that was the fatal mistake made in Louisville. Each precinct should have a dispensary to which the women of the district should report every week, bringing their cards of inscription with them, upon which the surgeon enters the date and the result of each examination, under his signature, and there be examined by the police surgeon and his staff of assistants. That this part of the work may be properly attended to, the police surgeon attached to each precinct should have the necessary assistants. Connected with each police precinct there should be a bacteriological department. This staff of assistants should be on duty as often and as long as necessary during the week in order to examine all the women of the precinct, for it is not obligatory that all the women should be examined in one day. Indeed, they might be divided up among the whole seven days of the week, according to the size of the precinct and the number of public women therein resident. Any woman found diseased or suspected should be sent at once to the venereal department of the City Hospital, to be there held and treated until the examining surgeon pronounced her no longer a source of danger to the community. This, so far as the public woman herself is concerned, would be perfectly easy of accomplishment, for every police captain knows all the "crooked" inhabitants of his precinct, be they male or female. And, if these women are publicly registered and licensed by the city, not only is a control obtained over the women, but a stop is put to persecution and blackmail on the part of the police. This plan, it will be observed, takes cognizance of all the women going to a house of prostitution as well as of all the permanent residents of the same.

There remain a large number who constitute the main army of clandestine prostitutes, the women who live in private rooms, and who have ostensible and often respectable means of livelihood, and who go upon the streets, to concert halls, or to various other places of amusement, in order to pick up men, whom they take to their rooms. These are as great a danger to the public health as any class of prostitutes. How shall they be controlled? As regards the street-walker and the girl who frequents the various places of amusement, such as concert halls, beer saloons, and the like, the police in a very large proportion of cases get to know them in a short time, and after the police are satisfied as to the nature of their amusements—or, if you please to call it, business — these girls might be summoned before the precinct captain, and given their choice as between abandoning harlotry or becoming inscribed, being allowed in the latter case to retain their private rooms and not being forced necessarily into a public house of prostitution. This privilege, how-

ever, would not exempt them from inscription. Each woman should receive a card similar to the one already described.

My readers may perhaps say that this is rather a Utopian idea, and that the experience we have had with the New York police in this matter is not such as to warrant too much confidence in the belief that the force would exercise this power except for purposes of blackmail. I would, however, suggest to these objectors that a great deal of the scandal of past and present years is due to the fact that we have persistently refused to recognize prostitution as an established fact, and under the plea of refusing to "traffic with iniquity" or to make "a compact with sin" we have absolutely declined to exercise any control either over the bawds or over the police in their relations with them. It will be noticed that I have not suggested that the police should have the power of arrest. They would merely report that A., B., and C. were in the habit of frequenting public places or soliciting men, the police in the large majority of cases knowing where these girls live. As soon as they were satisfied that particular girls were living to a certain extent on prostitution, the ward detective would call upon these girls with a polite intimation that the captain of the precinct would like to see them. In this way I think matters could be arranged without any public scandal or any injury to the women's feelings.

This plan would embrace pretty nearly all the women who would be likely to constitute a public scandal or be a menace to the public health. There is no doubt a small class, oftentimes of respectable family, who occasionally associate with one or two men, and who resort to hotels. Of that class it would be almost impossible to take any cognizance, nor perhaps would it be desirable that any public recognition should be made of them. So long as they behave themselves and are decent and quiet, neither hotel proprietors nor the public have any interest whatever in the motives which impel them to seek hotel accommodation. If, however, a hotel should become notorious for the class of loose women who frequent it, the police could very easily put a stop to the scandal by an interview with the proprietor. Regarding tenement and apartment houses, the owner should be held responsible for the persons who live in them. I have heard it said that it is exceedingly difficult to get the names of the proprietors of such places, but I think a little diligence on the part of the police would very quickly reveal the responsible persons, and so soon as that were done it would be a simple matter to hold the owners responsible for the inmates of the houses. When the police were satisfied that clandestine prostitution was being carried

on in any tenement or apartment house, they should first of all notify the janitor that it must be stopped, and failing that, they should be required to report the matter to their precinct captain, whose duty it should be to report it to headquarters, and inquiry made as to the owner of the property, who should be held to a strict accountability. Social status or wealth should not shield him.

Within late years liquor saloons have sometimes become the resort of women, for whose accommodations a side apartment with a separate entrance has been provided. As many of these saloons are required by law to supply a certain number of furnished rooms, these rooms are said to be used for illicit purposes. Nor can this very well be prevented, for no saloon-keeper will or can be expected to inquire of the relations of those who seek for lodgings. If, however, the house become a cause of scandal to the neighborhood, then the place can readily be suppressed and the saloon-keeper's license be taken from him.

In connection with this subject of the control of prostitution it would be instructive to note the experience of the few cities in this country where regulation of prostitution has been attempted, and the rocks upon which they have split. Three American cities, Nashville, Louisville, and St. Louis, have tried to regulate prostitution. I find from the records that "at the eighth annual meeting of the American Public Health Association, held in New Orleans in November, 1880, Dr. A. L. Gihon, chairman of a committee appointed to investigate the prevalence of venereal diseases and suggest some practical plan of prevention, submitted a very interesting report, in which occurs the following:

"Colonel Fletcher, of the Surgeon-General's office of the United States Army, reports to your committee: 'In 1863, while I was on duty in Nashville, the question of the periodical examination of prostitutes as a protection to the troops stationed at or passing through the city was referred to another medical officer and myself. We drew up regulations for the purpose, and for nearly three years women were examined, at first every two weeks and subsequently every ten days.

"'I believe this was the first occasion of any systematic inspection of prostitutes attempted in the United States. Its results may be briefly stated thus:

"'1. The amount of venereal disease was markedly lessened; so much so that the existence of disease came to be looked upon (absurdly of course) as an imputation upon the care of the examining surgeon.

"'2. The women, who were at first rebellious, became quite reconciled to the system. I have known them to come to the hospital voluntarily, desiring to be examined for suspected disease.

"'3. It was self-supporting, the fees paying the expenses of the hospital.'"

This apparently was the first attempt at systematic control over prostitution made in this country. Some years after an attempt was made to control the public women in Louisville, but it was a failure; and in an oral communication made at one of the section meetings of the New York Academy of Medicine the late Dr. Palmer, of Louisville, stated that the principal cause of its failure was that the women were examined in the brothels, apparently by a physician chosen by the housekeeper. The consequence was that the examinations were perfunctory, indeed were often not carried out at all, the word of the woman of the house being taken as to the sanitary condition of its inmates. Of course such an examination was only a farce.

The third and most systematic attempt was made in St. Louis. For the facts and statistics of the experiment I am indebted to a report made by Dr. William L. Barret, health officer of St. Louis at the time this law was in effect, and to information supplied me by J. T. Pratt, Esq., the editor of Dr. Sanger's work, "The History of Prostitution." The law went into effect on July 25, 1870, and at first, Dr. Barret says, "the bawds were not reconciled to its restraint. They regarded it simply as a new device of persecution, and scores left the city rather than submit to its provisions. In addition, it was drawn so loosely and with such a lack of precision that its evasion was an easy task. Indeed, its authority was openly defied, and conviction in the police courts for its violation could not be procured. The report of 1871 distinctly stated 'the exhibit made did not include all the women in the city engaged in prostitution, *but only that portion of them a defective registration was able to reach.*' It also stated that the very large decrease in the total number of prostitutes was mainly due to an exodus in consequence of the law's enforcement. No one at all familiar with the subject was surprised."

The early results in St. Louis are only such as will be met with at the inception of every law which is instituted for the control of prostitution. The unfortunate strumpet is between the upper and the nether millstone; reprobated by the public, and made the target for all sorts of persecution and blackmail by officials, it is little wonder that she regards every law that is made ostensibly for her con-

trol, and possibly for her protection, as merely another move in the "little game" of which she is the final victim. Both Dr. Barret and Mr. Pratt say that as the law became familiar and better carried out the unfortunates became reconciled to it, and "instead of exerting all their energies as they formerly did to evade it, they now endeavored to prevent its evasion; and the chief of police, who is perhaps the best authority, says that in his opinion there are now no greater number of clandestine prostitutes than before the enforcement of the law." There were very few if any who practiced prostitution who escaped surveillance. Dr. Barret quotes statistics bearing upon the results of the regulation system, in which it is shown that the number of harlots steadily diminished, and that with this the number of prostitutes who were treated at the Social Evil Hospital decreased. Mr. Pratt assured me that at the time the law was repealed, in 1873, or thereabouts, all persons who were capable of forming an opinion on the subject were agreed that the law worked well in every respect, both as regards the public morals and the public health.

It is impossible, of course, within the limits of this paper to go as fully as one would wish into this interesting subject, but there is one table which I should like to quote. We all know the proverbial mendacity of figures, but if there is any value in them at all this table is peculiarly instructive. It gives the reasons assigned by the different women for becoming prostitutes:

From choice	2288
Seduced	56
Necessity	254
For support	26
Poverty	23
Deserted by husband	9
Ill-treatment of parents	11
Drunkenness	9
Husband's desire	1
Led to it by sister	1
To support children	7
Total	2685

Out of this number, 2288 followed the occupation from choice! A startling admission, and yet one that I am not so much surprised at, for I have elsewhere expressed my belief that love of dress is a far more common cause of women's fall than poverty.

Another fact worthy of note is that the result of the St. Louis law was that, while the number of houses of prostitution during the

time that this law was in effect—from July 25, 1870, to March 31, 1873—had increased from 119 to 133, the number of women occupying private apartments decreased from 205 to 7. In other words, the effect of the law had been to drive the clandestine and more dangerous harlot from cover into the open, and to force her to come out in her public character, thus making her more amenable to control and reducing her opportunities of becoming a source of public danger. Of course, the cry is sometimes raised that the liberty of the subject is interfered with, but that plea I believe to be false as regards the public or the private prostitute. The only possible source of danger might be in the event of a witless policeman accosting the wrong woman; but, from my slight experience of the New York police, I should say that there are not very many fools on the force. As a rule the police can easily discriminate between the woman waiting for her husband who has gone in to buy a cigar and the street-walker who is loitering about the pavement in the pursuit of her trade.

When it comes to the question of treatment I believe it far better that the public woman, when she is sent to a hospital, should be sent to one where she will meet only her like, and not to the wards of a general hospital where she may come in contact with some young girl, who, tempted, according to the theologians, by the devil, possibly by her own needs, to play the harlot, is seduced by the glittering and alluring picture which the hardened prostitute exhibits before her more innocent sister. And in this connection it is worthy of note that Dr. Isidor Dyer, of New Orleans, at the International Conference for the Prophylaxis of Syphilis, etc., held at Brussels in 1899, stated that over 30 per cent of the prostitutes in the United States were minors.

I feel that I have encroached too much on the indulgence of the readers of this article, but the subject is interesting, and one which should command the respectful consideration of every sociologist and student of municipal government. I frankly confess to the belief that any and all suggestions with regard to controlling prostitution in this country are likely to fall upon deaf ears, because, for some reason or another, such control seems to be contrary to the sentiments of all English-speaking people, and they would rather suffer the shame and degradation which has fallen upon every citizen of New York City consequent upon the disclosures by the Lexow and other investigating committees, as well as the statements, more or less truthful, which have lately been published in the papers as to the effects of open prostitution on the youth of the East Side, rather than openly recognize the evil. To those who object so

strenuously to the control and licensing of prostitution let me offer this statement: Both have existed in New York for many years. They exist at the present day, and in their very worst forms, if reports made in the public prints are to be credited. Is it not better, in the interests of decency and morality, that we should recognize that prostitution, gambling, and liquor selling cannot be suppressed by legislative enactments, that it is unwise and unsafe therefore to decline to exercise any control over them, than by shutting our eyes to the abuses and the miseries resulting therefrom, allow them to go on and become a scandal to the well meaning and a source of moral degradation and physical disease to both the sinner and the saint?

16 WEST 32D STREET, NEW YORK.

BOOK REVIEWS.

PROGRESSIVE MEDICINE. Edited by Hobart Amory Hare, M.D., Assisted by H. R. M. Landis, M.D. Volume I, March, 1901. Price, $10 per annum. Philadelphia and New York: Lea Bros. & Co.

J. C. Da Costa begins the new volume of this valuable quarterly with a discussion of the surgery of the head, neck, and chest. His opening remarks relate to simple and exophthalmic goitre, upon which much has been written during the past year, and very little has been added to our knowledge of the subject. The various theories of hyper- and hypothyroidization, together with the treatments and operations based upon these theories, are discussed. The importance of medical treatment, persistent and thorough, in exophthalmic goitre is referred to. We are left somewhat in doubt as to the value of various surgical measures employed in the treatment of this disease. In the surgery of the mouth reference is made to Lydston's new method of operating for salivary fistula, Ferguson's operation for the closure of harelip, and the plastic methods employed in filling the defect caused by a sinking of the bridge of the nose.

F. A. Packard contributes the article on infectious diseases, including pneumonia, croupous pneumonia, and influenza. He refers to the labors of Westphal, Wassermann, and Malkoff, who have succeeded in identifying a microorganism which seems to be the chief agent in the production of acute articular rheumatism. Weber's observations on the occasional epidemic character of pneumonia are referred to. In the etiology of scarlet fever an excellent *résumé* has been given of the work done by Class in identifying the germ of this disease. In typhoid fever the serum method of diagnosis, in the application of which there seems to be no unanimity of opinion, occupies the forefront of the discussion. In this disease the trend is in favor of departure from a strictly milk diet. In MEDICINE, editorially, we have referred to this subject, stating that a milk diet was in effect a solid diet, because the milk was coagulated in the stomach. Wilson says that frequently curds are found post mortem in the stomach in cases of typhoid fever. He recommends soft-boiled eggs, milk toast, custard, cornstarch, arrowroot, wine jelly, baked apples with cream and sugar, fruit juices, tea and crackers, and beef juice in the diet of typhoid. Preventive inoculation has been extensively discussed, but as yet no definite conclusions have been reached.

F. M. Crandall treats of the diseases of children. Infant feeding naturally begins the chapter, and he refers to the large number of communications which have appeared during the past year. The most of these, he says, are compilations and contain nothing new or original. The term modified milk should be changed to *adapted* milk, to indicate a milk which has been changed to suit an individual case. The difficulty of securing pure and fresh milk for infant feeding has been pointed out by Chapin in regard to New York City, whose milk supply is derived from five States and thirty-four counties. The time of delivery of the milk varies from twelve to thirty-six hours after it is gathered. The difficulties of transportation are somewhat overcome by the addition of large quantities of preservatives, formaldehyde being especially objectionable from the standpoint of infant feeding, as it makes the curds very difficult to digest

Ludvig Hektoen refers to the activity in the study of pathology in this country, to the appearance of a number of special publications in this department, and the foundation of special exhibits in connection with the various medical organizations. There is a discussion of cytotoxins and antitoxins in relation to immunity. Not a little has been done during the past year on the pathogenic microorganisms, and several new species have been added to the list. In passing judgment upon what has been done in establishing the parasitic nature of malignant tumors, Hektoen says that the various organisms which have been cultivated from tumors have not been proven to be causative agents in their production. The work of Leopold is entitled to respectful consideration, but in several other instances the publications are remarkable chiefly on account of their prematurity.

The volume is closed with a short chapter on laryngology and rhinology by A. Logan Turner, and one upon otology by R. L. Randolph.

PULMONARY CONSUMPTION, PNEUMONIA, AND ALLIED DISEASES OF THE LUNGS. By Thomas J. Mays, A.M., M.D. Price, $3.00. New York: A. B. Treat & Co. 1901.

The peculiar views of Dr. Mays regarding the origin of certain affections of the lung are already quite well known to the profession through his occasional contributions to the periodical medical press. He tells us in his preface that the present book had its inception in his desire to show that the so-called lung affections have their origin for the most part in causes exterior to the respiratory organs. He has been working upon this line for the past thirty years. He formulates the following propositions:

"1. Pulmonary phthisis in the large majority of cases is primarily a neurosis, and the pulmonary disintegration is secondary.

"2. Any agent, influence, or condition which undermines the integrity of the nervous system will engender pulmonary phthisis or some other form of pulmonary disorder.

"3. The only remedies of value in the treatment of pulmonary phthisis are those which appeal to and act through the nervous system.

"4. Of special value in the treatment of phthisis is the counter-irritant action of silver nitrate introduced hypodermically over the vagi in the neck.

"5. Acute pneumonia and other forms of acute pulmonary disease are closely affiliated with disorders of the nervous system."

The work opens with a brief description of physical diagnosis, and then passes directly to the study of the causes of pulmonary consumption. It is in the latter that the peculiar ideas of the writer show themselves. He divides the etiology of the disease into (1) those causes which vitiate the nervous system in general and the pulmonary nerve supply in particular; (2) those which irritate the lungs directly through the inhalation of dusty air; and (3) those which act through infection. The second group of causes includes the production of pulmonary disease through the action of specific poisons on the pneumogastric nerve. The specific action of some, such as alcohol and lead, are well known, but the more subtle poisons which accompany the exanthemata escape detection. Uricacidemia and other forms of intoxication are set down among those which poison and depress the pneumogastric nerve.

The chapter discussing the predisposing causes of consumption is, to our mind, the best in the book; the author has gathered material of value, though

some of it is twisted so as to defend his thesis of the relation of the disturbances of the pneumogastric to the development of pulmonary tuberculosis. In discussing treatment the author refers to his use of injections of silver nitrate over the nerve in the side of the neck. A number of histories are given, and also clinical charts, which support his contention of the efficiency of this treatment. In the closing chapters of the work there is an effort to bring pneumonia into the category of nervous diseases. In speaking of asthma, the author offers the following definition: "Asthma, like epilepsy, is a convulsion. It consists essentially of a paroxysmal motor disturbance of the respiratory centers and of the pulmonary nerves, which causes spasm of the muscles of the bronchial tubes and catarrh of the mucous membrane of the same." We give this as a sample of much that will be found in the book. Taken as a whole, it is a fine example of what can be accomplished by some one who will early adopt a theory and then industriously collect all facts or circumstances which can be tortured into a support of the theory, and, at the same time, reject all observations and facts that tend to the support of a contrary view.

INFANT FEEDING IN ITS RELATION TO HEALTH AND DISEASE. By Louis Fischer, M.D. Philadelphia and Chicago: The F. A. Davis Co. 1901.

From the amount of attention which is given to infant feeding, one would conclude that the specialty of pediatrics was confined to this topic. There is scarcely a medical journal devoted to general medicine which does not contain some reference to the subject, and a large share of the space of pediatric journals is devoted to it. A late volume on infant feeding should therefore meet with prompt acceptance by the profession, especially since there has been no recent monograph on the subject.

The work of Fischer is based upon an extensive experience in one of the largest clinics for diseases of children in New York City.

There is a brief opening statement of the anatomy and physiology of the stomach, and a description of the size of the organ in early infancy. Then follows an account of the ferments, and of the bacteria of the intestinal tract in children. The main portion of the work is taken up with an analysis of the various substitutes for mother's milk, and of the diseased states caused by improper artificial feeding. The work is conservative, and, we think, will meet with the approval of the majority of the profession, notwithstanding the fact that there is no one subject in medicine in which there is a greater diversity of opinion. The author has not described one method to the exclusion of others, but there is a full presentation of the different phases of the question. It will be found to be a practical and useful work to those who have the supervision of infants.

A SYSTEM OF PRACTICAL THERAPEUTICS. Edited by Hobart Amory Hare, M.D. Volume II. Price, $5.00. Philadelphia and New York: Lea Bros. & Co. 1901.

The prophylaxis and treatment in the course of typhoid fever is written by Hobart Amory Hare. That it is largely rewritten in this edition is shown by the references to very late observations, such as the importance of disinfecting the urine, and antityphoid inoculations. There is an excellent *résumé* of the operative treatment of perforation, and the writer's well known views on the relation of cold bathing to this disease are described.

J. M. Anders discusses the prophylaxis of malarial fevers, speaking of the possibility of exterminating Anopheles; drainage is commended for this purpose, and the possibility of petroleum in marshy places is spoken of. The treatment of smallpox and the exanthemata are discussed by William Welch and J. P. C. Griffith.

In speaking of yellow fever, D. T. Laine recognizes that it is due to a bacillary inflammation, the exact nature of which has not yet been determined. Sanarelli's saprophyte is said to be accidentally present in the blood and tissue of yellow fever patients. The possibility of yellow fever being a mosquito-borne disease is not mentioned.

In the treatment of diphtheria, F. M. Crandall confines his remarks to two methods—the use of antitoxin and intubation. H. A. Hare has an excellent article on the various forms of pneumonia. That we have not heretofore been very successful in this disease is shown by the enormous death-rate. A table is given showing that according to the Registrar-General's report, it caused more deaths in England than typhoid fever, diphtheria, varioloid, measles, and scarlet fever put together. W. H. Thomson contributes a very valuable paper upon acute and chronic heart diseases, and F. C. Shattuck one on diseases of the blood-vessels. Nearly one-third of the work is taken up with an exhaustive discussion of the treatment of various nervous affections, including a description of the care of the insane. The closing chapter is one upon the modern treatment of diseases of the skin.

This second volume of Hare's Practical Therapeutics is up to date, most of the articles having been rewritten so as to include the very latest contributions upon the subjects of which they treat.

A Practical Treatise on Materia Medica and Therapeutics. By John B. Shoemaker, M.D., LL.D. Fifth Edition. Price, $4.00. Philadelphia, New York, and Chicago: The F. A. Davis Co. 1900.

There are no striking changes in this, the last, edition of Shoemaker's materia medica, with the exception that the author has found it necessary, owing to the increase in new remedies, to divide the work into two independent issues. The one we are now considering, known as the student's edition, will include nothing beyond the description of those drugs and preparations which are official in the Pharmacopœias of the United States and Great Britain. The work begins with a pharmacentical section, which is followed by a chapter on the administration of remedies and their classification. Part II gives a description of the various drugs, which are arranged in alphabetical order. Throughout the work numerous prescriptions are given, almost every drug having several in which it is combined with other remedies. In each case the metric system is used, and the equivalents are given in ounces and drachms. Such an arrangement is to be commended, as no one thing will do more to popularize the metric system than will its universal employment in works of this kind, bringing it constantly before the eye and familiarizing one with the equivalent quantities in measures with which he is familiar.

This volume is a very useful text-book for the undergraduate, and its numerous formulæ serve to familiarize the students with the combining of drugs, at the same time furnishing them with useful methods of treatment.

EDITORIAL COMMENT.

THE OLDER WRITERS ON MALARIA.

Professor Grassi, one of the leading Italian authorities on malaria, was interviewed in 1900 by Drs. Manson and Sambon. The following answers were obtained to certain leading questions. The substance of these replies may be taken as representing the creed of the modern malariologist.

"Can a man contract malaria without being bitten by the mosquito?"

"No."

"Can a mosquito infect a mosquito?"

"No."

"How then do you account for the prevalence of malaria which is reputed to follow on turning up of fresh soil in malarial countries?"

"When you dig in the ground you make holes in which water is collected, and there Anopheles breed. Where men go, there Anopheles come."

"How is malaria in uninhabited countries to be accounted for?"

"We have no perfectly authenticated cases of such. In fact Sarrasin, in his recent interesting work on the Celebes, states that malaria is not contracted in the jungles, but only near the villages."

"No man, no malaria; no mosquito, no malaria. Is that your creed?"

"Yes, most decidedly."—*British Medical Journal*, Feb. 10, 1900.

The very full discussion of malaria in "Watson's Practice of Physic," written in 1836–37, may be taken to represent the views of the profession prior to the discovery of the plasmodium. In 1878 the writer heard the late J. Adams Allen propound the views of Watson, as being in accord with his own wide experience in this disease.

That there had been little change in the old writers is shown by the statement of Watson that Lancisi was the first to put forth distinct ideas on the subject, and that as late as 1836 his work, "De Noxiis Paludum Effluvis," published in 1695, was still the great original work on the subject.

Certain things were predicated of malaria in Watson's time, the truth of which is only confirmed by our exact knowledge of the parasite and the means by which human beings are infected. In the early part of the nineteenth century the word *malaria* became fashionable as a substitute for the term marsh miasmata. It was stated by Watson to be a *specific poison*, and not simply bad or impure air. He declares that ague in London is almost always

imported; this corresponds to the absence of Anopheles from large cities. He was aware that malaria required a certain degree of moisture, but that excessive quantities of water prevented the disease. Excessively malarious districts in India can be traversed safely during or immediately after heavy rains, but they become very dangerous a few days later. He noted that the decomposition of vegetable matter was often associated with the malarial poison, but claimed that it did not produce it, as the miasm was known where there was no decaying vegetation.

Ferguson, an early nineteenth century writer on malaria, said that the most deadly conditions were those in which the surface was covered with water and then dried rapidly; precisely the conditions which late writers claim to favor the development of the malarial mosquito.

Watson fully recognized and emphasized the view that malarious districts were much more *dangerous at night.* Lancisi was aware of this, and devoted a chapter of his book to its study. A ship is spoken of that visited the Island of St. Thomas. The crew of 280 all went on shore hunting and fishing; they all returned to the ship at night, excepting sixteen men, all of whom had malaria, and thirteen of whom died. Only those who remained on shore at night had the disease. The following year the same ship at the same place lost eight of ten men who remained on shore over night. From these facts Watson deduces the practical rule: "In malarious countries the open air at night must be avoided. 'Early to bed' is a good and wholesome rule; but the other half of the proverb, 'early to rise,' becomes an unsafe precept in such countries. At least it is hazardous to *leave the house* early." It will be seen that Watson made a distinction between rising early and going out-of-doors.

The conveyance of the malarial poison by the wind was well understood; and the fact that it would not cross a stream of any width, or traverse a wood, was known. The relation of cultivation and density of population to malaria were well known. The Italians date the introduction of malaria into the Maremma from the plague in the sixteenth century, after which the number of inhabitants became greatly reduced. Ruderpoor in India, after its devastation in 1805, became excessively malarious; prior to that time it had no malaria.

It will be seen from this brief presentation that the older views are quite in accord with the theory that malaria is a mosquito-borne disease. All the conditions that are now known to favor Anopheles were claimed by the older writers to favor the spread of malaria.

LEUCOCYTOSIS AND TYPHOIDAL PERFORATION.

The importance of early diagnosis in typhoidal perforation cannot be overestimated. In the majority of cases an operation alone will benefit, and such intervention must be undertaken early if the patient is to be saved. At one time it was thought that in the leucocytosis that accompanies this condition an infallible means had been found for determining perforation. Such, however, seems not to be the case, as recent contributions to the subject show.

The latest is that from Colin K. Russell in the *Boston Medical and Surgical Journal* of April 18, 1901, in which he analyzes the material in the Royal Victoria and the Montreal General Hospitals. These cases, eleven in number, all occurred in the year 1900. The day of the disease varied from the eleventh to the forty-sixth, the most of the cases occurring between the fourteenth and the twenty-second. The temperature at the time of the examination varied from 104° to 98° F., and the time in which the perforation occurred after a meal is in most cases from two to three hours. A number of the cases were on liquid diet, and in one, that which occurred on the forty-sixth day of the disease, the diet was milk toast, eggs, and custard. The degree of leucocytosis varied from twelve thousand to thirty thousand, the majority being in the neighborhood of twenty thousand. In one very severe case the perforation occurred in the morning, the pulse was rapid and irregular, there was marked tenderness and tympanites. In this case the leucocytosis was only 4800.

Additional doubt is thrown upon leucocytosis as a pathognomonic sign of perforation, by the fact that in cases where there were no complications the number of white cells sometimes amounted to 15,000. In complications other than perforation there may be a very marked increase in the leucocytosis. In one of the writer's cases the only discernible complication was a simple bronchitis; in this case the leucocytes rose to 20,000.

A study of this material enables the writer to draw the following conclusions: (1) In perforation it is the general rule to have a leucocytosis, but the degree may be within wide limits. (2) The leucocytosis, while appearing as a rule early, may not be marked until general peritonitis and collapse have supervened. (3) Leucocytosis may be absent in cases in which there is perforation and general peritonitis; in fact, the white cells may be lower than normal. (4) Typical signs of perforation may be present and a definite leucocytosis in which no such complication may be present; in these cases an operation may be performed unnecessarily.

(5) Marked degrees of leucocytosis occur in other complications than perforation. (6) When pain and tenderness in the abdomen come on suddenly in the course of typhoid fever, with absence of the signs of cholecystitis, and these conditions are associated with leucocytosis, an exploratory operation is justified. In two of the writer's cases such an operation in which no perforation was found resulted in no bad consequences.

THE INCREASING MORTALITY FROM PNEUMONIA.

Advance sheets from the *Monthly Bulletin* of the Chicago Health Department show that pneumonia has displaced pulmonary consumption as the principal cause of death in Chicago during the last ten years. Prior to the last decade the number of deaths from consumption have been greater than that from any other disease, but in the last decennial period there were nine per cent more deaths from pneumonia than from consumption. The liability to death from pneumonia advances with increasing age, and the greater proportion of deaths from this disease is in part to be attributed to the increasing age of population. In 1850, 2 per cent of the population was over 60 years of age; in 1860, 2.2 per cent; in 1870, 2.2 per cent; in 1880, 3.6 per cent; and in 1890, 3.8 per cent.

This influence of increasing age is admitted to have a considerable weight, and we have already pointed out that the great increase in the number of deaths from cancer was in part to be attributed to the increased age of those living. It does not, however, in cancer account for the entire increase; the same is true in the study of the Chicago statistics for pneumonia. If the mortality figures of pneumonia are compared with the deaths from all causes according to the Health Department *Bulletin*, the great increase in pneumonia is not wholly nor solely due to the increasing age of the population.

The chief factor in the enormous increase in the death-rate from pneumonia is found in the wide prevalence of influenza. It is especially in the last decade that the mortality in pneumonia has so enormously increased, and that includes the period during which the influenza has been an endemic disorder.

The fatality which has attended the various influenza epidemics in Chicago have led the health department to urge physicians to submit specimens from the throats of suspected cases to bacteriological examination for the demonstration of the Cannon-Pfeiffer bacillus. This bacillus was demonstrated as early as 1890 in the

laboratory of the health department, but unfortunately the profession have availed themselves in only a limited degree of the facilities placed at their disposal in studying influenza and its fatal complication, pneumonia.

THE TONOMETER OF GAERTNER.

The accuracy of Gaertner's tonometer has been experimentally shown. It records the mean of vascular pressure, and allowing for the difference between the larger and smaller arteries there is a striking degree of uniformity and accuracy of the measurements which have been made. Granting that the instrument is not absolutely accurate, it would still be quite as efficient from a clinical standpoint if it were relatively so. Heretofore numerous instruments have been devised for the purpose of registering blood-pressure, but none of them have been satisfactory. The sphygmograph in the hands of those who have devoted years to the practical use of the instrument may be of some value, though we are quite confident that after several tracings have been taken, that one which best agrees with the clinical phenomena of the case is selected as typical of the case which is being examined. Alterations in the pressure of the button upon the artery will produce almost any kind of a tracing with the sphygmograph. The instrument of von Basch, which was devised for directly registering the blood-pressure, was also very inaccurate. In its application the radial artery was used, sufficient pressure being made upon the vessel to cause pulsation to disappear on the distal side. The exact point at which the artery ceased to expand was very difficult of determination, as the sense of touch is not reliable, one often feeling the pulsation in their own vessels and possibly mistaking it for that in the artery of the patient.

In the Gaertner tonometer the measurement of pressure required to just collapse the artery is accurate because the index of returning circulation as noted in the congestion of the finger can never be mistaken, as it depends upon the color change in a blanched finger, the difference being so striking that the point at which it appears is sharply defined. In using the instrument a beginner could practically reach nearly as good results as those who have had considerable experience with it.

It is difficult to say just how valuable frequent records of vascular pressure will be in the diagnosis and prognosis of many conditions. Even in health there are considerable variations, but like most tests of this sort there will doubtless be established a normal mean which,

if persistently increased or diminished, will be strong evidence of disease. A fortunate thing in the tonometer is its simple construction, small price, and ease of application, three factors which especially lend themselves to its wide clinical application.

THE BACTERIOLOGY OF ECZEMA.

Until recently this disease has been regarded as peculiarly due to local changes in the epidermis and alterations in the circulation of the skin, to which no definite cause could be assigned. For centuries it has been necessary for all systems of medicine to invoke a special irritation to account for these visible changes. We have the dartrous diathesis of the French, the "psora" of the homeopaths, and the omnipresent uricacidemia of the modern scientific school.

At the last Dermatological Congress, and also at the International Medical Congress, the question of the parasitic nature of eczema was much in evidence, the leaning being distinctly toward the view that in this disease there was an infection of the skin by staphylococci or streptococci. Our knowledge of the pathologic action of these germs has broadened very much in the last few years. Formerly they were regarded as pus-formers pure and simple, and to say that pus was present was to mean that these germs were contained in it. Later studies have shown that these views are not correct; that many germs which had heretofore been thought to cause specific changes in the tissues, but not suppuration, have been found capable of forming pus. On the other hand, the so-called pus-formers are found to initiate changes in the tissues which do not lead to suppuration.

The extraordinary series of studies which have been made of late years have been partly based upon direct observation and cultivation of the microorganisms in eczema, and partly upon a renewed study of its clinical history in the light of our late knowledge of the pathogenic microorganisms. The conclusions which have been reached place our knowledge of eczema upon a broad foundation, and show that a very large proportion of the cases are due to a direct infection by a pathogenic microorganism. It may have its entrance through a solution of continuity in the epidermis; or some irritation may so alter the nutrition of the superficial layers of the skin that germs which are already present become active.

ABSTRACTS.

MEDICINE.

The Mosquito Malaria Theory.—

In the Section on Medicine of the New York Academy of Medicine (*Medical News*, Feb. 23, 1901) was held a discussion on the late theories of the transmission of malaria. W. N. Berkeley has found the two forms quadrimaculatus and punctipennis common in the neighborhood of New York. The latter is found in the vicinity of Jerome Park, while the former has its habitat in all the suburbs of New York where malaria occurs. So far as known, no malarial district is without some form of Anopheles, this confirming all observations made in other countries that malaria is a mosquito-borne disease.

There are some places on Long Island where the Anopheles are common, but there is no malaria. In one or two of these places the nights are so cold that during the summer the inhabitants sleep under blankets. The malarial mosquitoes are found most often in ill-ventilated and dark rooms; hence the poor suffer most from this form of infection. The Anopheles practically never bites during the day. In this respect it differs from the more common mosquito, the Culex.

The earliest cases of malaria in the spring depend upon the date at which the Anopheles bite. This in Italy is said to be in June, but it has been observed in a gardener at Larchmont as early as March 16; the patient must have been bitten as early as March 1. Cases that occur earlier in the spring are relapses from previous attacks of the disease. It is only the impregnated female that hibernates, and it may occasionally be found clinging to walls and dark places during the winter. The female mosquito alone stings.

The form of malaria in New York is invariably tertian; the quartan fever has not been positively diagnosticated. Cases having the crescentic forms of the malarial parasite are not influenced by the administration of quinine. The Anopheles mosquito is not found on Manhattan Island, and only one case so far has been observed in a resident of Manhattan, all of the others being imported cases.

The exact period of incubation in one case was fourteen days. The patient had not been out of Manhattan for several years, but

exactly fourteen days before the initial chill she had visited a sister and three children who were suffering from malaria at Fordham. The writer mentions one source of malaria in our American cities that could be eliminated, namely, the drainage of stagnant pools in the resident districts. These commonly result from the opening of new streets which are raised to grade, while at the sides of the street the ground, being lower, is covered with stagnant water. In one case he was able to limit the infection by prompt measures. The first person in this epidemic to be attacked was a coachman. Several servants in the same house and adjoining houses were affected. An examination of the neighborhood showed a considerable number of Anopheles mosquitoes. The persons affected were surrounded by mosquito netting; screen doors and windows were provided, and certain stagnant pools in the neighborhood were drained and filled. These measures were followed by a prompt subsidence of the epidemic.

William H. Thomson said that the mosquito theory of the distribution of malaria was one of the greatest discoveries of the age—of even more importance than the discovery of the germ of tuberculosis. The finding of the true source of malaria brushes away at once all the old ideas with regard to essentially unhealthy climates. It is not soil or air or water, or changes in them, that cause disease, but their fostering of germ life. These important facts with regard to malaria should be brought to the notice of the general public.

Symptomatology of Angina Pectoris.—

Frank Billings, in the *Chicago Medical Recorder* for February, 1901, gives a description of a typical case of angina pectoris. Notwithstanding that many clinicians claim that angina pectoris exists only in a typical form, he thinks that it does occur with less severe, and perhaps not quite as severe pathogenic, symptoms. He has complete records of twenty-one cases. Of these, four occurred in the period of 44 to 50 years of age; nine from 51 to 60; seven from 61 to 70; and one at 82 years of age. Only four of these cases had typical anginal attacks at the beginning; the remaining seventeen had had attacks which began with a breast pang and with a sense of fear, with the pain radiating in the left shoulder and down the left arm; in five of the seventeen the pain was down both arms. The attacks usually came on after a meal. The patients were obliged in every instance to remain quiet until relief came, as in every case in which there was exertion the pain increased. In all there was complaint of a sense of fulness, which was relieved by the eructation of

gas. The most of these patients attributed their trouble to indigestion because of the fulness of the stomach, and the fact that eructation of gas was followed by relief of the pain. In all there was the shallow respiration with an occasional deep inspiration. The heart was usually slow, occasionally palpitating or irregular, and usually the pulse was tense and sustained. Bodily quiet was necessary for the relief of the pain, even in the mildest cases.

That these milder cases were true angina pectoris is proven by the fact that some of them developed into typical cases, three of which died suddenly in attacks. Of the twenty-one cases, but two have been lost sight of; seven are dead, six dying suddenly in attacks, and one of gradual neurasthenia of the heart following a severe croupous pneumonia. In every one of the twenty-one cases arterial fibrosis could be recognized by a thickening of the palpable arteries; in all of them there was evidence of cardiac disease manifested by an accentuation of the second aortic tone, and in most of them feebleness of the first sound. Cardiac murmurs were present at some time in nearly all cases which could be observed over a long period of time. During the attacks the second aortic sound was always much accentuated, while the first sound could be heard very indistinctly.

Intermittent Lameness.—

James J. Putnam, in the *Boston Medical and Surgical Journal* of February 21, 1901, describes, under the term dysbasia intermittens angiosclerotica, a symptom-complex which has been described by some writers as intermittent claudication. According to Charcot, this disorder usually affects persons past middle life. After walking a short distance they are seized with a cramp in the legs which renders further progress impossible. After a few moments' rest they can again go on. It is not so much a pain as it is an actual incapacity for motion, though there are sometimes abnormal sensations in the feet.

The patient which Putnam describes was an active business man of 70 years, of temperate habits, who had always been free from disease. He had no signs of renal, cardiac, or arterial disease, with the exception that he once suddenly fell from his chair due to a sudden attack of vertigo, which was not accounted for by any change in his ears. Following this attack there were periods of prolonged dizziness accentuated by movements of the head. The symptoms of chief interest showed themselves in the form of an intense sense of muscular fatigue in the legs amounting almost to pain, which came on whenever the patient walked more than an eighth of a

mile. This quickly passed away after repose. The pain commonly began in the left calf, soon after in the right, and then extended to the hips. The patient was singularly free from neurasthenic symptoms, and curiously, work caused no fatigue.

Electricity and baths were industriously followed, but without any effect. Finally the patient took to kneading his calves every night and morning, and this was followed by marked improvement.

Erb and Charcot have regarded this condition as essentially one of sclerosis of the arteries of the lower extremities. A careful examination of this patient's arterial circulation, made before the treatment was begun, showed that one of the posterior tibial arteries could be felt distinctly, the other very faintly, while the dorsal arteries could not be recognized. The same conditions obtained since improvement, with no appreciable difference. The best explanation, according to the writer, is to regard it as a vascular spasm.

Comparative Pathology of the Jews.—

Morris Fishberg, in the *New York Medical Journal* of March 3 and April 5, 1901, has an excellent study of the liability of Jews to the development of certain diseases. He says that the death-rate of Jews at all ages is relatively and absolutely lower than that of the people among whom they live. The marriage and birth rates of the Jews are smaller than those of the Christians; Jews increase in number more rapidly than other people, because they lose by death relatively fewer children and bring more to maturity. The death-rate among the Jews from many of the infectious diseases is not so great as that of their neighbors, particularly epidemic cholera, smallpox, and tuberculosis. Syphilis and alcoholism and diseases due to other poisons are comparatively rare. Diabetes is frequent among the Jewish race, some observers stating that as large a proportion as 25 per cent of all cases occur in Jews. All the functional neuroses and psychoses, particularly neurasthenia and hysteria, occur with greater frequency among Jews, while organic nervous diseases, as tabes and general paralysis, are less frequent, corresponding with the infrequency of alcoholism and syphilis among them. The great majority of cases of amaurotic idiocy occur in Jewish children, and insanity is met with among Jews between two and five times more often than among Christians. Blindness, color-blindness, trachoma, glaucoma, varicose veins, hemorrhoids, and hernias are frequent among Jews. These peculiarities in the comparative pathology of the Jews are not due to any ethnic or "biostatic" or racial characteristics of a purely anatomical or physiological nature. They have

their origin in the past history of the Jews, in their habits of life, and in the fact that syphilis and alcoholism are rare among them. Where the Jew mingles with his Christian neighbors and adopts their customs and habits, losing the racial characteristics, his comparative pathology presents no special peculiarity.

The Present State of Mental Science.—

Bernard Hollander, in the *Journal of Medical Science* for April, 1901, has a very valuable article, the first of a series, dealing with the brain as an organ of the mind as interpreted by our present knowledge of pathology, experimental physiology, anthropology, and speculative psychology. His conclusions are that the size of the brain is not a measure of the intellectual power alone, but a measure of the strength of the intellect, the sentiments and propensities taken together. The sensory areas are not the areas of intellectual perception and reflection. The occipital lobes are not concerned with the higher intellectual processes. The motor and sensory centers alone are not sufficient to explain the diversity of human character and the varieties of mental derangement; they are the substratum of the mental centers. The frontal lobes are an index to a person's intellect, and their mass is to be judged by all the measurements which are used for the estimation of the size of a body; the head may be small in a person of wisdom, provided the frontal lobes are relatively prominent. The memory is not a single faculty, there being centers in the brain for individual memories such as number, time, place, tune, etc., besides the memory of words which is already located. There are centers for the fundamental emotions and propensities separate from the centers for purely intellectual processes. The intellectual faculties control and elevate the sentiments and propensities; the anterior lobes are the centers of inhibition for the rest of the brain.

Blackwater Fever.—

J. W. W. Stevens, in *The Lancet* of March 23, 1901, interestingly discusses this vexed question. He says that the conclusions regarding malarial fever which have been drawn from a study of the blood are too comprehensive. If an examination of the blood shows no malarial parasite, it does not positively exclude malaria. Occasionally cases of malarial fever occur in which no parasites can be found in the peripheral circulation; hence the conclusion that blackwater fever in such a case is not malaria may be erroneous. He attaches great importance to the presence of pigmented leucocytes and leu-

cocytic change, which may be often the only means of diagnosis except the clinical features, especially if quinine has been administered, for the latter may cause a disappearance of the malarial parasites from the peripheral circulation. He gives a table of sixteen cases of blackwater fever, in only three of which parasites were found.

His conclusions are in accord with Koch, namely, that blackwater fever is caused by the administration of quinine, for it commonly comes on from four to ten hours after the administration of this drug. He also believes that it occurs occasionally in malarial cases in which no quinine has been administered. The condition is best illustrated by the analogy of hematoporphyrinuria, which is caused most commonly by sulphonal, but is exceedingly rare among those who take the drug. On the other hand, it occurs among those who are not taking sulphonal or any of its congeners.

In conclusion he says that blackwater fever is essentially a malarial infection, in which quinine is the most common immediate determining cause. Protection from malaria will insure protection against blackwater fever. Complete protection may, as his two years' experience in tropical Africa shows, be attained with proper clothing and protection by mosquito nets.

Differential Diagnosis of Arthropathies by the X-rays.—

E. Broussilovsky and L. Buchstab (*Arch. Russes de Path.;* abstract in *La Presse Médicale*, March 13, 1901) report their experience in the diagnosis of certain arthropathies by means of radiographs. The studies were all made under identical conditions, the tubes being at the same distance and placed as near as possible in the same relation to the joint. They have studied two cases of arthritis deformans, two cases of chronic rheumatism, and two of gouty rheumatism. In the gouty rheumatism a large clear space is noted between the extremities of the bones, which is limited by the epiphyses forming the articulation. In chronic rheumatism the light space is much darker and is sometimes completely absent. The epiphyses are much darker than normal and their outlines are less marked. In arthritis deformans the interarticular space is always dark, and there are always deformities in the phalanges.

Mountain Fever.—

R. H. Reed, in the *Journal of the American Medical Association* of April 20, 1901, says that there is a marked difference between typhoid and mountain fever; the agglutinative reaction of Widal,

while positive in typhoid fever, is usually negative in mountain fever; the mortality is much greater in typhoid, and the average duration of the disease is longer. In mountain fever the Eberth-Gaffky bacillus has not been recognized. The rise and fall of temperature in mountain fever is more abrupt than in typhoid. Tympanites, epistaxis, and intestinal hemorrhage are seldom seen in mountain fever. The eruption in typhoid fever is usually confined to the abdomen, is not raised, and disappears readily on pressure, returning promptly when the pressure is relieved; while the eruption in mountain fever nearly covers the body, is raised, and has a "shotty" feeling, and does not disappear on pressure. These differential points the writer looks upon as sufficient to stamp mountain fever as a distinct nosological entity. It is not merely a mild form of typhoid, but is a distinct malady, probably having its own specific infeciens. In some respects its clinical history is like typhoid, from the fact that it is a continued fever with diurnal oscillations of temperature and some of the general symptoms which are present in typhoid and which are common to all continued fevers.

SURGERY.

Resection of the Rectum by the Vagina.—

John B. Murphy, in the *Philadelphia Medical Journal* of February 23, 1901, precedes a report of five cases by a brief description of the methods which have been heretofore employed in dealing with carcinoma of the rectum. He especially refers to the development of the vaginal operation, which was first described in 1890 by Des Quins.

The first patient was operated July 16, 1898. Twelve months preceding that date she complained of pain in the lower abdomen and upper portion of the vagina. Later there were blood and mucous discharges from the rectum. Examination showed a malignant tumor of the first and second portions of the rectum, the extent of the disease being shown in Fig. 1. In the operation the vagina was dilated, the cervix drawn down, and the cul-de-sac opened by a transverse incision similar to that employed in vaginal hysterectomy. Large laparotomy sponges were passed into the peritoneal cavity to displace the intestines from the field of operation. The tumor was examined as well as the retroperitoneal lymph glands. The tumor extended upward almost to the brim of the pelvis. The recto-vaginal septum was divided down to the rectum by a vertical

incision in the middle line, extending from the postcervical opening and including the sphincter ani (Fig. 2). The posterior vaginal wall was now dissected laterally from its attachments to the rectum. Lateral retractors were placed in position, giving a large field for

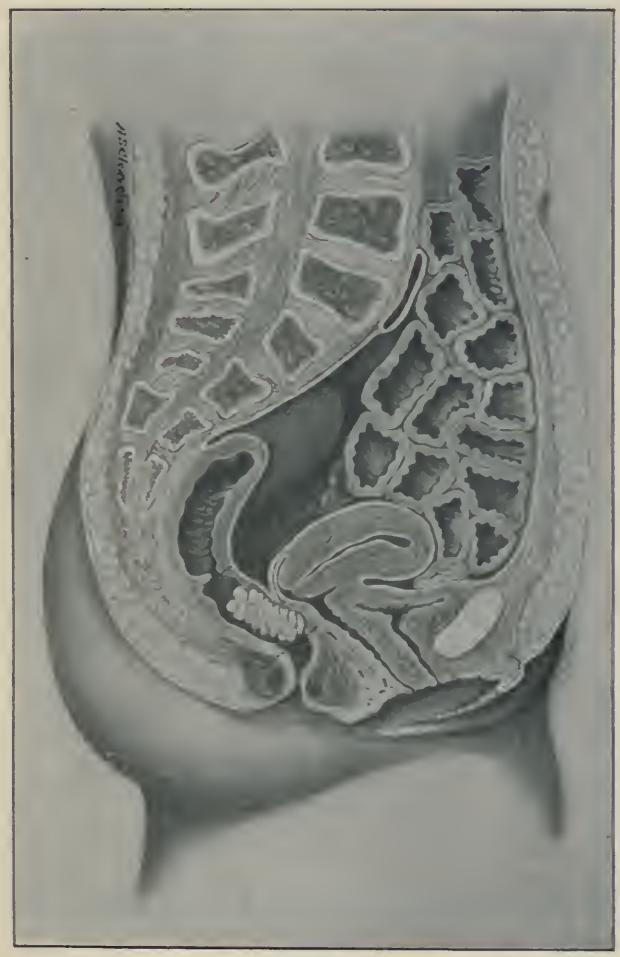

FIG. 1.

operation (Fig. 3). The sigmoid could be handled throughout its entire extent and brought well down without difficulty. With scissors, the anterior rectal wall, including the sphincter, was divided up to the lower border of the tumor and the anal segment of the rectum separated from that just above it by a complete transverse

incision one inch below the lower limit of the tumor, the incision extending into the postrectal connective tissue (Fig. 4). The proximal end of the rectum was grasped by the vulsellum forceps, closing it completely, and by the use of curved scissors separated from its

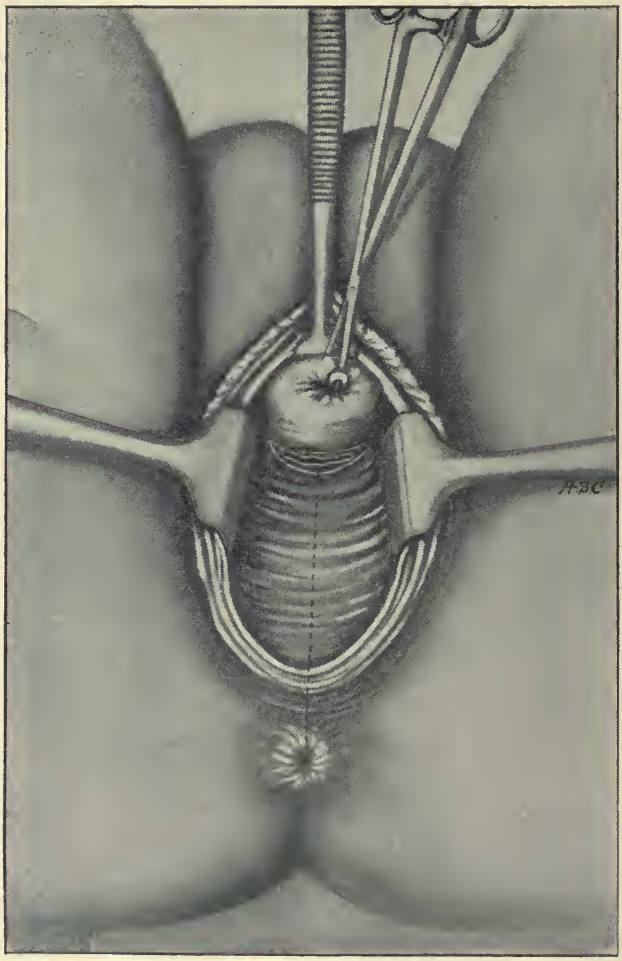

FIG. 2.

coccygeal and postrectal attachments upward to the promontory of the sacrum, thus freeing and mobilizing it (Fig. 5). The hemorrhage during this part of the operation was easily controlled. The mesosigmoid was now loosened sufficiently to allow the healthy portion of the bowel to come well down. The rectum was amputated

above the upper border of the tumor, and the sigmoid and the sphincteric segment of the rectum united end to end by silk sutures. These were passed from within upward, leaving all the knots on the inside of the bowel, the ends being left long to facilitate removal.

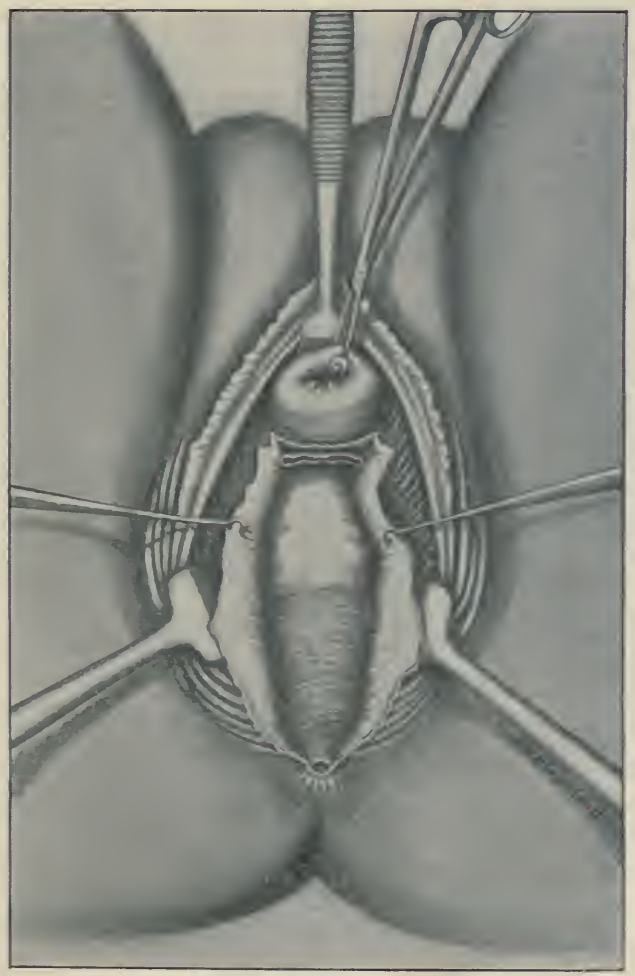

FIG. 3.

The incision in the anterior rectal wall was closed with silk sutures introduced in the same manner as those last described, and the ends of the divided sphincter united by buried sutures of catgut (Fig. 6). The laparotomy sponges were removed from the peritoneal cavity,

and the peritoneum on the floor of the pelvis closed with a continuous catgut suture. The vaginal wall was sutured to the cervix, closing the transverse incision, and the edges of the vertical cut united in the center line with silkworm-gut sutures (Fig. 7). A

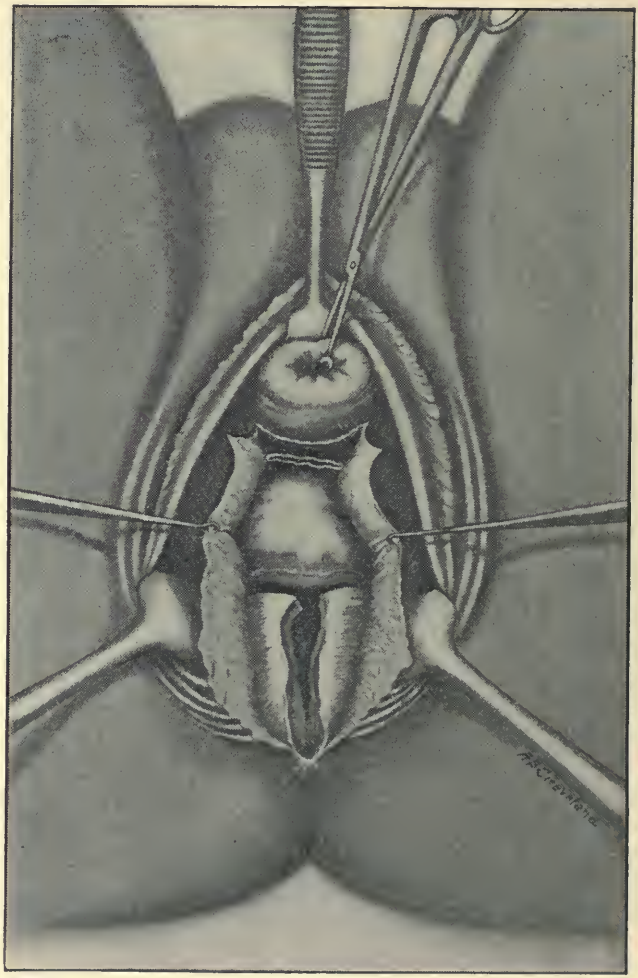

FIG. 4.

large rubber drainage-tube one inch in diameter was inserted into the rectum and sutured in place.

Convalescence was uneventful. After removal of the rectal tube it was noted that there was a slight fecal discharge from the vagina

when the bowels were loose. This sinus required a secondary operation.

A second case was that of a woman 67 years of age, with a hard, ulcerated tumor involving the first and second portions of the rec-

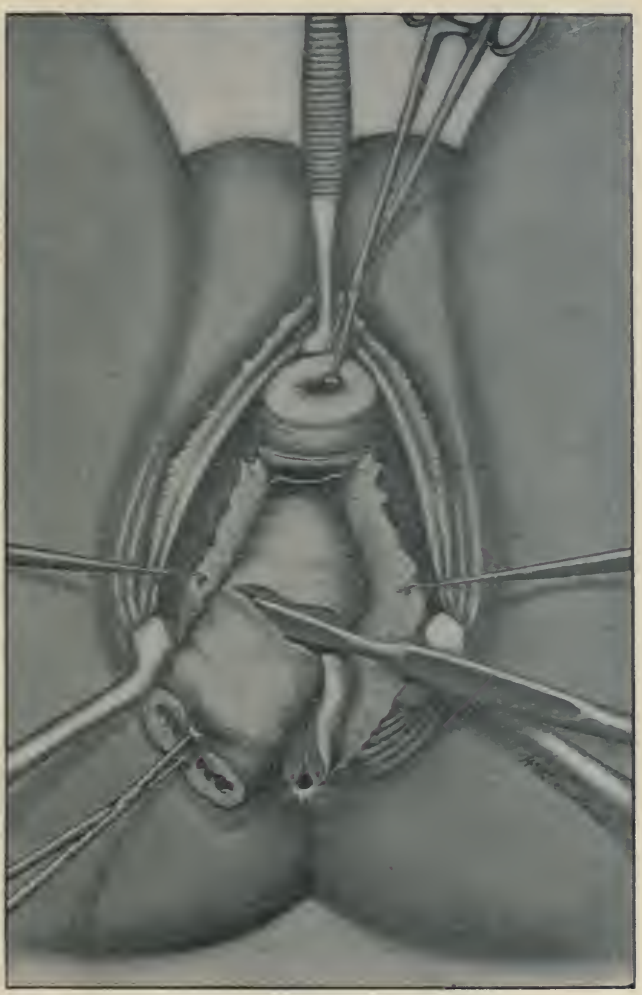

FIG. 5.

tum. The operation was similar in every respect to that performed in the first case. There was a rectovaginal fistula following the operation, which was relieved by freshening its edges and uniting them by sutures.

The third case was similar in every respect to the first. The diseased portion was resected by the same method, and no unpleasant symptoms followed the operation except a rising temperature, which persisted for some ten days.

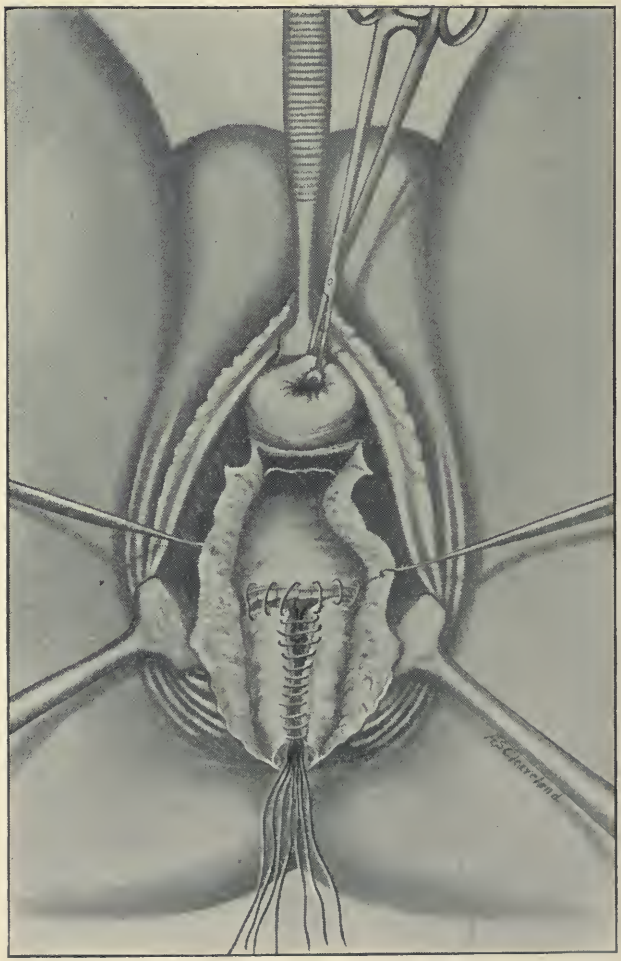

FIG. 6.

The fourth and fifth cases were similar in operation and results to those of the first case.

In closing the article, the writer comes to the following conclusions regarding the advantages of the vaginal route:

1. The sacrum and posterior bony wall of the pelvis are not disturbed.

2. The field of operation is as extensive and the anatomical parts as accessible as in the transacral operations.

3. The peritoneal cavity is opened in both the vaginal and sacral operations, and in neither is it a source of great danger.

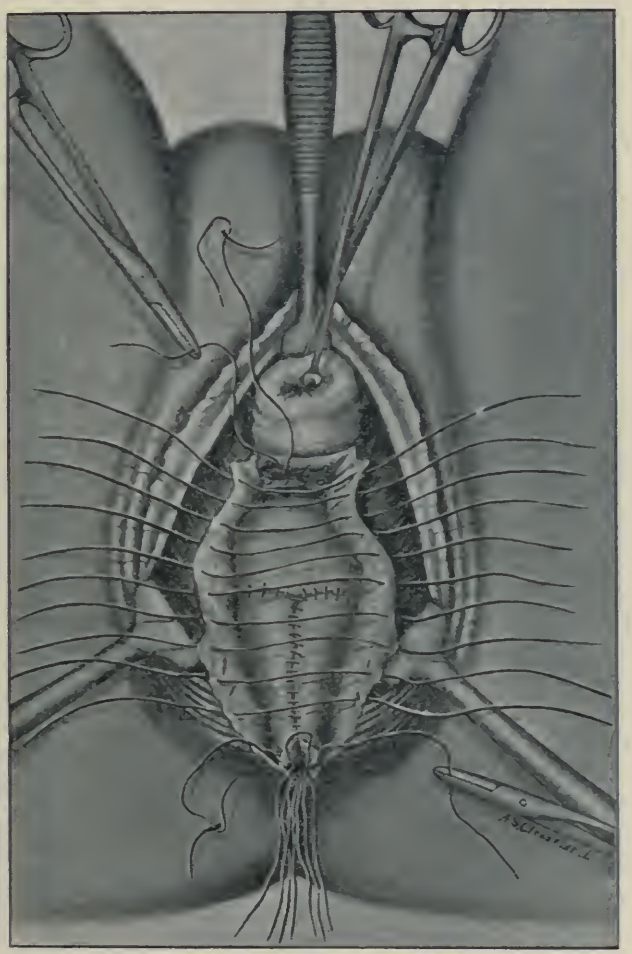

FIG. 7.

4. The diseased tissue is more accessible for inspection, and the extent to which the operation may be carried in an upward direction is as great as, if not greater than, by the sacral route.

5. The peritoneum may be drained freely through the vagina.

6. A perfect end-to-end approximation, either by suture or by

the use of the button, may be secured. The preferable method of uniting the two ends is by interrupted sutures of silk, because, as there is no peritoneum on the sphincteric segment, failure of union with the button is to be feared.

7. The sphincter is retained and the perineal body is restored. There is diminished action of the levator ani muscle.

8. When the operation is complete the parts are practically in their normal position.

Murphy has performed the same operation on a male cadaver, and finds that by splitting the sphincter directly through the median line and cutting back to the coccyx and opening the rectovesical fold of the peritoneum, practically the same field of operation can be obtained as in the female. Several inches of the bowel can be excised and end-to-end union secured.

Prus's Method of Resuscitation from Chloroform Narcosis.—

The Lancet of April 13, 1901, mentions editorially an article by Dr. Freyberger in the *Cf. Hospitalstidente*, Band viii, No. 47, and abstracted in *Treatment* of January 4, 1901. The patient was a laborer 24 years old, about to be operated on for severe sciatica. Chloroform was administered at 8 A.M.; it was followed by slight excitement, but in fifteen minutes there was complete anesthesia; the pupils were contracted and respiration was normal. When the incision was made over the sciatic nerve a struggle occurred; more chloroform was given, when the patient became asphyxiated, which was relieved by tongue traction and artificial respiration. Up to this time four drachms of chloroform had been employed. The operation proceeded, but after a few minutes respiration again failed, and efforts at resuscitation were futile. Ten minutes later the trachea was opened and air was blown into the lungs. Prus's cardiac massage was then decided upon, and an incision was made in the skin and muscles parallel to the third and fifth ribs and left sternal edge. The third and fourth ribs were cut close to the sternum, and two and a half inches were resected in the flap. In doing this the left pleural cavity was accidentally opened. The hand was then introduced, and the heart with the pericardium still intact was grasped. No movements were felt, but rhythmic compressions were systematically practiced, partly by grasping the organ and partly by pressing it against the back of the sternum. After a short time slight contractions were felt, which gradually increased, and at the end of one-half hour spontaneous respirations were initiated. These were at first feeble and infrequent. At the end

of three hours breathing was deep and without effort. At this point cardiac compression and artificial respiration were discontinued. The patient was unconscious. Four hours from the commencement of inhalation respiration became difficult, and after a few minutes ceased. The heart continued to beat from midday until 8 P.M., according to the statement of Dr. Freyberger. This constitutes one of the most striking cases in medical literature. The pupils did not react to light and were contracted; the radial pulse was imperceptible, but there was visible venous pulsation in the neck. The temperature of the body was fairly maintained, falling slightly; after eight hours it was 98° F.

The Lancet discusses some of the features of this remarkable case and the probable causes of the man's death. It is possible that the pneumothorax which resulted from the accidental wounding of the pleura in the operation, together with adhesions in the lung which were found at autopsy, contributed much to the embarrassment of respiration. This theory, however, does not account for the facts. A more reasonable supposition is that the respiratory center was totally incapacitated about four hours after the beginning of artificial respiration. *The Lancet* is of the opinion that Prus's method, which seems so heroic, may have an application in those desperate cases in which our present methods are quite useless.

Simulated Perforation in Typhoid Fever.—

We recently abstracted an article by Professor Osler dealing with the diagnosis of perforation in typhoid. Some of the rules laid down by him are not always reliable, as is shown by a recent communication by W. F. Hamilton in the *Montreal Medical Journal* for February, 1901. The signs which are most relied upon in the diagnosis of typhoidal perforation are sudden abdominal pain, tenderness and rigidity, collapse, and rapid pulse, but these are by no means constant. The signs of collapse may be wanting. Even pain may not be complained of. Obliteration of the liver dulness has been overestimated. Leucocytosis in the absence of other complications, while a valuable sign, cannot always be depended upon.

The writer reports the case of a male, 18 years of age, who was in the tenth day of typhoid. The symptoms had begun with a moderate temperature, slight abdominal tenderness, and distention in the left upper quadrant. Rose spots appeared on the second day, and the next day a perfect Widal reaction was obtained. Cold bathing did not seem to agree with him, and sponging was substituted. On the fourteenth day of the disease he complained of pain

in the abdomen, which did not come on suddenly and was not attended with collapse, but it was most severe on the left side. The whole of that day the pain increased in severity. On the following morning the abdominal walls were rigid, with marked tenderness in the left lower quadrant of the abdomen and a further increase in the severity of the pain. Liver dulness was obliterated; examination of the blood showed 14,000 leucocytes. On opening the abdomen, some clear reddish fluid was found in the peritoneum, but no inflammatory exudate. The vessels in the visceral peritoneum were turgid, and several mesenteric glands were enlarged and deeply congested. There were no signs of perforation. The wound was closed with silkworm-gut sutures without drainage, and the patient made an uninterrupted recovery, the temperature becoming normal on the twenty-eighth day of the disease.

This case is of interest in the very close resemblance which it bears to the ordinary symptoms of perforation. About the only difference that can be noted is that the pain did not come on suddenly. An interesting feature is that the mesenteric glands were enlarged and deeply congested. Such glandular enlargements in the abdomen are not infrequently followed by pain and tenderness, and it was doubtless this condition that gave the symptoms. So far as the clinical history is concerned, it does not seem that the operation interfered in any way with the patient's chances for recovery, and in a doubtful case such as that described it is unquestionably better to operate, as the author wisely remarks, "a non-perforative case of typhoid fever operated on has far better chance for life than a perforative case left alone."

The Bottini Operation for the Radical Relief of Prostatic Obstruction.—L. B. Bangs, in the *Medical Record* of March 9, 1901, says that nearly one-third of all men after the age of 45 or 50 present some symptoms of prostatic trouble.

Operations upon the prostate, particularly in those cases attended with bladder and urinary changes in which the general health is impaired, are only to be undertaken after serious consideration. The more radical the operation, the greater the risk. Operation should only be performed in cases in which it is imperative.

After three years' experience with the Bottini operation the author has become convinced that it is a valuable method of treating prostatic hypertrophy. Even this operation should not be undertaken lightly, and the patient should be as carefully prepared as for any other important surgical procedure. Cases which are to be sub-

mitted to the Bottini operation should be carefully selected, as there are some to which it is not adapted, or in which it must be combined with a suprapubic cystotomy or perineal drainage. There is a remarkable difference between the action of the galvanocautery and that of the Paquelin cautery; the former leaves a fine delicate eschar, while that from the Paquelin is thick and leathery. In the Bottini operation it is necessary to keep the cautery at a white heat; in each case the extent and depth of the incision should be carefully estimated beforehand, making allowance for the effects of the heat and current, which extend beyond the point at which the knife actually penetrates. The incision should be made very slowly to prevent hemorrhage and to get the best results.

Bangs has employed the Bottini operation in thirty-four cases, three patients having been operated on twice. One patient had a previous prostatectomy. Another patient two years before the Bottini operation had been castrated, but when he came under observation he had six ounces of residual urine and a calculus in the bladder. After the Bottini operation he had two ounces of residual urine, which is still diminishing. The ages of the writer's patients vary from 40 to 75 years, and the longest catheter life was fifteen years. About 50 per cent were wholly dependent upon the catheter; about 20 per cent could urinate a little spontaneously, but were obliged to use the catheter. The time for voluntary urination to appear after the operation varied, the shortest being immediately following the operation, and the longest two months thereafter. One death is directly attributable to the operation, the patient dying of acute sepsis in twenty-four hours. About 20 per cent of his cases were failures; all of the remaining cases were followed by marked improvement or a symptomatic cure. It is possible that time will show a return of the symptoms in many of these cases.

A New Operation for Anal Fistula.—

R. D. Fairex, in the *International Journal of Surgery* for April, 1901, describes what he speaks of as a new operation for the relief of this condition. It is conducted under general anesthesia, an incision being made anteroposteriorly, about two inches long, near the center of the opening of the fistula, but the cut going a little to one side. The skin and fascia are cut through, and the muscular fibers are separated longitudinally by an Allis dry dissector, or by the handle of the scalpel. The nerves and vessels are retracted, and the separation of the muscular fibers is continued alongside of the fistulous tract until the gut is reached; the fistulous opening in

the latter is then excised or sutured, the stitches only including the serous coat. The entire fistulous tract is then dissected out and the wound closed in the usual manner. The after-treatment consists in keeping the bowels at rest. The advantage claimed for the operation is that it does away with section of the anal sphincter, which often leaves a patient in a worse condition than the fistula.

[The method advocated by Fairex is certainly an ideal one in dealing with anal fistula; that it is practical in all cases we doubt, as the difficulty in following a fistulous tract is in many cases considerable. A case was recently observed by the abstracter in which an operation for fistula was done on exactly these lines. The surgeon in operating was unable to introduce a probe, and consequently made an effort to follow up the fistulous tract, which he successfully did, dissecting it out as far as its opening in the intestine. The results were all that could be desired. A difficulty of dealing with fistulas will be their occasional very irregular formation with numerous branches and pockets, which will make a dissection such as is recommended very difficult if not impossible.]

Hydrocele and its Treatment.—

Orville Horwitz, in the *Therapeutic Gazette* of April 15, 1901, discusses the various methods of treating hydrocele and gives a *résumé* of 338 operations performed at the Jefferson Medical College Hospital between the years 1894 and 1901. The operations included almost all of those which have been recommended for the cure of this affection. He refers to the injection method as being the most unsatisfactory of all that have been devised.

The operation of election is that devised by Doyen and published in 1895, an identical operation having been recommended by Winkelman in 1898. The operation is performed under local anesthesia. The ordinary incision is made through the scrotal tissue down to the tunica vaginalis. An opening is then made in the upper portion of the sac in the vicinity of the cord, through which the testicle is drawn after the fluid is evacuated, then the tunica vaginalis propria is everted. To prevent the testicle from slipping back into the sac, the upper part of the tunica vaginalis is secured by means of fine catgut sutures to the fascia of the cord, a suture being placed at the same time at the lower end of the tunic, anchoring it in its new position and preventing the return of the testicle to its former position. The testicle, together with the inverted sac, is then replaced within the scrotum and the wound closed by interrupted sutures. The time needed for the operation is less than ten minutes. It is not attended

by hemorrhage, and no ligatures are needed. The operation was first performed in this country by W. W. Keen. In large hydroceles of long standing, with thickened sacs, the operation is not practicable. In these resection must be employed, as it is impossible to invert the tunic. In all cases operated upon by eversion a painless enlargement of the testicle resulted, not attended by rise of temperature, the enlargement subsiding at the end of ten days. The reporter thinks that this operation will prove the most satisfactory for the radical cure of ordinary hydrocele.

Resection of the Superior Cervical Ganglia for Glaucoma.—

H. W. Dodd, in *The Lancet* of March 23, 1901, describes the case of a woman 44 years of age, with chronic glaucoma in both eyes. It began in the left, which was operated on in January, 1900. The operation was followed by improvement, but three months later pain was again experienced, and at this time the right eye became involved. In June, 1900, both eyes were operated upon, but with no improvement. On October 19 the superior ganglion was removed on the left side, the "pre-mastoid" method of Jonnesco being chosen. Immediately after the resection the tension of the eye fell to below normal. On the following morning there was slight ptosis, and the eyeball appeared to be a little sunken in the orbit. Three days later the tension was still low, there was some alteration in the voice, and the tongue was protruded with difficulty. On the seventh day after the operation the wound was nearly healed, and the patient sat up for a short time. Seventeen days after the first operation the right superior ganglion was removed, the operation being followed by a marked lessening of the tension in the right eye. On the same day it was noticed that there was some increase in tension of the left eye. Vision was considerably improved in the right eye. In February, 1901, about five months after the operation, it was found that the tension was +2 in both eyes and that the conditions were practically the same as they were before operation.

In a case previously operated by the reporter the same temporary improvement was noted, followed by complete relapse.

Phelps's Operation for Clubfoot.—

A. M. Phelps, in *American Medicine* of April 6 and 13, 1901, gives the results of his experience based upon 1650 operations. His conclusions are that all cases should be operated on after the fourth month where there is shortened skin and ligaments, and the open incision should always be employed. Prolonged medical treatment extending over months and years, while it may effect improvement,

yet it only displaces the simplest and most certain way of dealing with these cases. An operation for clubfoot should never be considered finished until the foot is placed in an overcorrected position with the foot flexed upon the leg and the heel prominent, so that it first strikes the ground in walking. He has discarded club-foot shoes of all kinds, using in place of them plaster of Paris or adhesive plaster to maintain the foot in an overcorrected position. Postoperative treatment is very important; indeed, the treatment of these cases may be said to just begin with the operation. Osteoclasis should be performed in all cases where there is an inward twist of the tibia; otherwise they will relapse. Bone operations should never be done prematurely. Open incision should supplement all cases of subcutaneous tenotomy when it fails to overcorrect. Short tendons and ligaments should be cut and not stretched, as the latter deforms the foot. A case cannot be said to be cured and free from danger of relapse until the heel strikes the ground first in walking.

THERAPEUTICS.

Adrenalin.—

Jokichi Takamine, in the *Therapeutic Gazette* of April 15, 1901, refers to the work of J. J. Abel and O. v. Furth. The former had separated from the suprarenal glands a substance which he termed epinephrin, and the latter a substance called suprarenin. Neither of these could be obtained in a pure state. Takamine states that he has succeded in isolating a crystalline substance from adrenals which causes a rise in blood-pressure, which he has named adrenalin. The form of the crystals varies according to the solutions from which they are made. It has a slightly bitter taste and causes a numbness of the tongue when applied to the mucous membrane. When dry it is perfectly stable, slightly alkaline, and with difficulty soluble in cold water and more readily in hot water, from which the crystals separate on cooling. The colorless aqueous solution is easily oxidized by contact with air. It is freely soluble in acids and alkalies, but not in ammonium hydroxide or solutions of alkaline carbonates. With acids it forms salts. He has prepared a hydrochlorate, sulphate, and benzoate, but has not succeeded in crystallizing them.

Physiologically it is a very active substance; a solution of one in ten thousand blanches the normal conjunctiva in from thirty to sixty seconds. Experiments upon dogs show that it is 625 times more efficient in raising blood-pressure than suprarenal extract.

When locally applied it is a powerful astringent and hemostatic,

a marked stimulant of the heart, and useful in all forms of inflammation. It is not poisonous or cumulative.

E. Fletcher Ingals (*Journal of the American Medical Association*, April 23, 1901) has used a solution of adrenalin in operations in the nose. He has found that a solution of 1 to 5000 acts with about the same rapidity and intensity in blanching the mucous membrane as a solution of thirty grains of the desiccated adrenal glands to an ounce of water.

One to five thousand in normal saline solution, kept in a bottle and opened frequently, was found to have a fungus develop at the end of a few days; this latter was obviated by dissolving the adrenalin in a liquid containing eight grains of boric acid, two drachms of camphor water, two drachms of cinnamon water, and four of distilled water. He believes that adrenalin will prove of great value in the treatment of acute inflammatory affections of the nose and throat, used either in the form of a spray, the strength being one to five thousand, or in the form of insufflating powders, in which it is combined with sugar of milk. He is confident that it will prove of great value in hay-fever, as well as in epistaxis. In acute inflammations of the fauces, solutions of 1 to 1000 would have to be employed to be of much benefit.

Murray McFarlane (*Canadian Journal of Medicine and Surgery*, May, 1901) has employed solutions of chloride of adrenalin in the strength of 1 to 1000 to 1 to 10,000, using as a diluent normal saline solution. In fifty cases of involvement of the conjunctiva, varying from simple congestion due to eye-strain to the worst forms of conjunctivitis, he has found a solution of 1 to 5000 to cause almost immediate blanching of the membrane, beginning in about ten seconds, the maximum in from five to ten minutes, the effect lasting from one-half to one hour according to the nature of the case. Blanching of the tissues may be obtained in from thirty seconds to two minutes by a solution of a strength of 1 to 10,000. In addition to the contracting effect upon the blood-vessels, there is a widening of the palpebral fissure, the eye appearing larger than its fellow. For practical purposes a 1-to-2000 solution was found to give the best results in operative work upon the eye. In employing cocaine with this solution the local anesthetic is applied first; if the order is reversed there is some interference with absorption of the cocaine.

In two strabismus operations and an advancement of the internal rectus muscle, two drops of a 1-to-2000 solution gave a bloodless operation, showing that there was deep as well as superficial hemostatic action. In an operation for the removal of an eye not more

than ten drops of blood was lost, scarcely any hemorrhage resulting when the optic nerve was severed. In diseases of the eye with a tendency to iritis, or choroidal diseases, and in corneal ulcerations, adrenalin should not be used.

The writer has had his most striking results in operations upon the nasal septum and in hypertrophies of the turbinates. Here he has found that adrenalin does not cause irritation, which so frequently resulted from the use of the desiccated suprarenal. A 1-to-2000 solution is applied after cocaine anesthesia has been established. The parts prepared in this way admit of the removal of cartilaginous growths and operations upon the septum or turbinates being performed without hemorrhage. The contractile power of the drug enlarges the field of vision for exploratory and operative measures. In the removal of adenoid vegetations the vault of the pharynx is sprayed by a solution of 1-to-5000 solution of adrenalin chloride. Except in very young children, the writer never uses cocaine anesthesia, relying upon a two-per-cent solution of eucaine B. In tonsillotomies the gland is painted with a 1-to-1000 adrenalin solution, which gives an almost bloodless operation.

Treatment of Rheumatoid Arthritis.—

P. W. Latham, in *The Lancet* of April 6, 1901, has an article on the pathology and treatment of this obscure affection. While the neural theory of the origin of this disease has not been confirmed by changes found in the nerve centers, autopsies which have included the thorough study of the cerebrospinal nervous system and the sympathetic ganglia have not been made. Many of these patients have neurotic antecedents with local nervous symptoms, such as numbness and tingling. It is a disease that is often associated with migraine. The marked atrophy of muscles that takes place in many cases comes on too quickly to permit the inference that it is due to simple disuse. In a few cases the muscular wasting precedes the arthritic changes.

In treating these cases the writer recommends counter-irritation of the spine, which is of great value if it is employed before the secondary destructive changes have come on in the joints. In chronic cases, during the marked exacerbations of the disease, the counter-irritation method may be used.

The procedure is shown in the account of one of his cases, that of a woman 47 years of age, who was admitted to the hospital December 19, 1900, with a history of successive involvement of different joints, so that she was prevented from following her

employment, that of a domestic, for the previous two years. Her legs had become weak and she had lost flesh. The appetite was poor and the bowels were constipated. She was anemic and looked older than her stated age. Both wrists were enlarged and swollen, the movements were limited, and the outlines of the carpal bones were indefinite. The metacarpal phalangeal joints of the first fingers were swollen and there was grating on movement. The knees were enlarged, especially the right. The right knee could not be completely extended and only slightly flexed. The temperature was normal. The patient was placed on ordinary diet and the bowels regulated. A blister six inches by two and one-half inches was applied to either side of the upper lumbar vertebræ, and the blistered surface kept open for a week with savin ointment. Within a week of the application of the blisters the patient complained much less of pain in the knees, the right knee was less swollen and less hot, while the left knee had become practically normal. Three days later daily massage of the limbs was ordered; in the progress of the treatment the knee-joints became free from pain, but there was not the same improvement in the wrists. Later, two blisters, four by two inches, were applied on either side of the lower cervical and upper dorsal vertebræ. A week later the wrists had gradually improved and could be freely moved without pain. This treatment effected a very great improvement in the general condition of the patient. At the end of six weeks she was able to leave the hospital, not even using a cane, her condition contrasting markedly with her helpless state upon admission.

The Serum Treatment of Pernicious Anemia.—

William Hunter, in *The Lancet* of March 30, 1901, exhibited before the Rural Medical and Surgical Society a man 37 years of age, who gave a history of breathlessness, palpitation, and progressively increasing weakness, that had begun two years before. A diagnosis had been made of gastric catarrh, on account of the discomfort in the stomach. The distress in the stomach and mouth were more or less constant, but subject to exacerbations coming on every three weeks and lasting two or three days. In addition there was nausea and retching, worse when the stomach was empty. A tingling and numbness of the fingers was complained of occasionally. A typical account of oral sepsis was given which had lasted for more than ten years. The symptoms, on coming under observation, were: (1) weakness and extreme anemia—the red corpuscles were 27 per cent and hemoglobin 35 per cent, with

poikilocytosis; (2) a lemon color of the skin with urobilinuria; (3) a sore tongue, dental necrosis, suppuration of the gums, and gastric pains; (4) tingling and numbness of the fingers and irregular pyrexia.

The treatment consisted of oral and gastric antisepsis. The teeth were scraped, some were extracted, and a mouth-wash was used, and mercuric chloride was administered constantly. During the month of July three injections of antistreptococcic serum were given. After the first the red corpuscles rose to 36 per cent; after the second to 52 per cent; and in the course of three weeks the red corpuscles rose to 65 per cent and the hemoglobin to 72 per cent. In September arsenic was added to the other treatment, and by December the red corpuscles had risen to 94 per cent and the hemoglobin to 100 per cent.

The reporter regards the case as one of typical pernicious anemia which was relieved by prolonged attention to the septic conditions of the mouth and stomach. The results clearly show the beneficial effects of serum treatment.

Treatment of Epidermoid Cancer by the X-rays.—

F. H. Williams (*Boston Medical and Surgical Journal*, April 4, 1901) reports a case of epidermoid cancer cured by the *x*-rays. The diagnosis was confirmed by histological examination, a small piece of the growth having been excised for this purpose. A picture is given of the ulcerated and indurated margin of the lower lip, the induration extending some little distance into the tissues. A lymphatic gland under the lower jaw, to the right of the symphysis, was enlarged, but it disappeared after the lip had healed. Exposures to the rays lasted usually five minutes, and were given nearly every day for some weeks. In the radiation of an excited Crooke's tube, we probably have a therapeutic agent which is of value in the treatment at least of superficial cancer in its early stage, and healing takes place without any caustic action. In some of his patients the treatment, which was given nearly every day, was stopped after healing had begun; in one patient the treatment, given at intervals of a day or two, was stopped after a few exposures, but improvement steadily continued without renewal of treatment.

[A fair inference may be drawn from these observations of Williams that a microorganism of some kind is responsible for this variety of cancer. The well known value of the *x*-ray in the treatment of lupus is probably directly dependent upon either the inhibitory effect upon the tubercle bacillus, or else on the altered condition

of the cells of the part caused by a reaction in the tissues. If the same effects are produced by the *x*-rays in epithelioma, it is a fair deduction that they too are caused by an organism.]

A Recent Modification of the Pasteur Treatment.—

John C. Morfit, in the *St. Louis Medical Review* of April 20, 1901, reaffirms his belief in the remarkable efficacy of the inoculations of the spinal cord of rabbits, according to Pasteur's method, in the treatment of rabies. One difficulty in the application has been the great expense of keeping up a series of properly prepared cords. Rabies is a rare disease, and the number of patients applying for treatment in a large and densely populated territory is small. The result has been that laboratories in which this treatment could be successfully given have been restricted to large centers of population (we believe that there are but two in the United States—one in New York and the other in Chicago).

The series of cords necessary in the treatment of a case requires the inoculation of at least one or two rabbits each day, in order that a desiccated cord which has been drying from twelve to fourteen days may be at hand for the application of the treatment, should a case present. The cords must be prepared whether there are any cases to treat or not. The modification proposed by Gibier is that in which the cord, after the removal from the rabbit, is placed in a sterile 30-per-cent solution of glycerin, which is found to preserve its peculiar properties unimpaired for a considerable length of time. Each day a portion of the cord is removed and placed over caustic potash. In this way a single cord will furnish the virus in proper attenuation for a period of fourteen days.

Arsenic in the Treatment of Cancroid.—

O. Lassar, in the *Berliner Klinische Wochenschrift* of March 11, 1901, gives an account of three cases in which the internal use of arsenic was followed by a disappearance of these growths. The first was a woman 62 years old, who developed upon the nose a small crust, which occasionally became moist, with a slight appearance of inflammation, and then subsided, to again recur. It gradually involved the surrounding tissues. A small portion of the growth was excised, and sections were made, which upon examination gave the appearance of a beginning epithelioma. She was given pills containing one milligramme of arsenic, which were taken in increasing and diminishing doses for several months. In all, over 1000 were given, equal to one gramme of arsenic. Under this treatment

the growth disappeared, leaving only a slight scar which marked the site of the removal of the small piece for examination. Two similar cases were treated; one at the end of eight years remained free from recurrence.

Massage in Gangrene.—

Douglas Graham (*International Clinics*, vol. iv, series 10) describes the remarkable results achieved in a diabetic who had had gangrene in one leg which necessitated amputation. The other leg became involved, there having been a succession of scabs formed on the foot so that the symptoms somewhat resembled Raynaud's disease. At the time he was seen no pulse could be felt in the dorsal artery of the foot or in the posterior tibial. After a half-hour's massage, the whole foot and leg were warmer, the tissues softer, and the tension less, and the dorsal artery could be felt so that the pulse could be counted. The method of work was principally by deep manipulation in a downward direction to aid the arterial current, followed by upward friction or effleurage to aid the venous and lymphatic flow.

Early in his practice the writer had a case of Raynaud's disease in which the typical vasomotor spasm was present, which rapidly improved under massage. As a result of his work in these cases he comes to the conclusion that where massage is effective in Raynaud's disease, it shows its results very quickly by the improved circulation and greater comfort. The vitality of the tissues can be maintained and improved by massage, but even where the integrity of the tissues is seriously impaired, recovery may take place. The beneficial effects of massage in these cases are of a permanent character.

Internal Secretion of the Ovary and Organotherapy.—

Wilmer Krusen, in the *American Gynecological and Obstetrical Journal* for March, 1901, says that the administration of ovarin and ovarian extract is based upon a wrong conception as to the function of the ovary. The office of this gland is to perform ovulation, and if any peculiar product is incidentally manufactured, its isolation has not yet been accomplished. The employment of ovarian extract is harmless, but is useless in most forms of amenorrhea and dysmenorrhea. The best results have been obtained in the relief of symptoms of an artificial menopause, and in some of these the congestion and nervous symptoms seem to have been ameliorated, though in many cases it is probable that suggestion played an important rôle in producing the results. No reliance can be placed upon the drug, as it proved valueless when used in cases in which

there were the most positive indications. In organotherapy the best results have been obtained from the use of thyroid and adrenal glands, and the ovary is in no sense similar to these in structure or function.

A New Local Treatment for Erysipelas.—

G. L. Curtis (*Medical Record*, April 20, 1901) employs sulphate of sodium as a local application to the inflamed area in erysipelas. The rationale of the treatment is found in the affinity which sulphate of sodium has for oxygen; abstracting it so rapidly from the diseased area as to soon destroy the germ of erysipelas. The application consists in first thoroughly cleansing the parts affected, particular attention being given to the removal of all greasy substances. A sufficient quantity of sodium sulphate is mixed with cold distilled water to give it the consistency of a thick poultice, the diseased part is covered with a single layer of gauze, and over this is spread a thick layer of sodium sulphate, care being taken that it extends considerably beyond the margin of the diseased area. The poultice is kept in place by a few layers of gauze. Ice water is now applied to the poultice. If the disease involves the face, the poultice is applied to the nose and mouth, the latter openings having tubes inserted so that the patient can breathe. He has found that an application of this kind commonly brings the disease to a standstill in from six to eight hours.

Tropacocaine Hydrochlorate in Spinal Anesthesia.—

Willy Meyer, in the *Medical News* of April 13, 1901, refers to Schwarz's experience in producing spinal anesthesia with this substance. The latter writer first experimented with eucaine B, but the same disagreeable symptoms are produced when that drug is used, and it has the same after-effects, as results from the employment of cocaine. Schwarz found that five-sixths of a grain of this drug produced as perfect an analgesia as cocaine, and none of the usual symptoms, such as pallor, perspiration, vomiting, headache, and a rise of temperature. Ten minutes after the injection analgesia was usually complete, which condition lasted until the end of the operation.

Meyer's experience shows that tropacocaine is less than half as toxic as cocaine, having very little effect upon the heart ganglia or the heart muscle. Recovery from its effects is much more rapid than from cocaine, and its solution is quite stable. He is not sure that it can be sterilized by boiling without impairing its efficiency.

Intra-arachnoidal Injections of Cocaine in Sciatica.—

The Paris correspondent of *The Lancet* (April 13, 1901) quotes a communication made by Marie and Guillain to the Hospitals Medical Society of a case of relief to pain of the sciatic nerve, by the injection of cocaine into the subarachnoid space of the spinal canal. The patient, a man aged 35 years, had suffered from right-sided sciatica of moderate intensity for eight years. No definite cause could be found, and he was given a subdural injection of five milligrammes of cocaine. Three minutes after the injection the pain was much diminished, and six minutes later it had entirely disappeared. The patient insisted on getting up, stating that he was cured. He walked about all day. Late in the afternoon the pain returned, but it was not as severe as it had been.

The same procedure has been employed by Achard, who treated three cases of sciatica by injections of cocaine. He employed a much larger dose, using from one to two centigrammes. In the case reported by Marie and Guillain, relief was quite as prompt from a much smaller dose, and there was no associated cutaneous anesthesia. The advantage of the smaller dose is great, as it avoids the constitutional disturbances caused by the larger amount.

The Akouphone.—

J. A. Kenfick, in the *Medical News* of April 13, 1901, describes Mr. Wilton R. Hutchison's recent addition to the mechanical aids for hearing. It consists of a telephone which is equipped with a small and very compact storage battery, which may be attached to the body, and which has a capacity of six volts. The transmitter is fitted with a funnel-shaped resonator, which gathers the sound-waves from the immediate neighborhood and conducts them to the instrument, where they are reproduced with great force and intensity. These sound-waves have great power of penetration when thus amplified.

Kenfick thinks that this new instrument may be of value particularly among deaf-mutes in teaching them articulate speech. At a recent demonstration before the Academy of Medicine with a deaf-mute 18 years of age, who had never heard anything, it was evident that the articulation and even inflection of speech could be conveyed by these means with a greater degree of success than had ever before been attained. In other forms of deafness its utility is theoretically doubtful, it bearing about the same relation to hearing that an extra strong arc light would to vision, in case the latter were impaired.

The Value of the X-rays.—

Harvey P. Towle, in the *Boston Medical and Surgical Journal* of April 11, 1901, has a review of the literature of the therapeutic use of the *x*-rays. He says that the real nature of these rays has not been definitely determined, and it is not certain whether their therapeutic action is due to the rays themselves or the electrical excitation which accompanies them. Treatment with the *x*-rays is not without danger, but they can be employed if great care is used; the effects of their action remain for a long time, and recovery is very slow. Whatever may be the origin of the effects produced, a definite reaction occurs in the skin following their employment, which is similar in most respects to ordinary inflammation. The rays have no bactericidal power, and their effect upon an infectious process is due to the inflammatory action which they excite. In cases of lupus it has been shown that ulcerated processes can be healed, but sufficient time has not elapsed to state positively whether these results are permanent. The effects of the *x*-rays are so slow in disappearing that months must elapse before a permanent cure in such cases can be predicated.

Atropine in Congestive Chill.—

I. L. Van Zandt, in *Merck's Archives* for April, 1901, describes his early experience in the treatment of the algid state of pernicious malarial fever. The cases which he describes closely resemble the collapse of cholera, being attended by thin serous discharges from the bowels and constant vomiting. His practice, which began in 1868, was in a locality in which malaria was rife, and his failure in the treatment of these early cases led to the abandoning of the usual methods recommended in the books at that time. His fourth case of congestive chill was treated with solid extract of belladonna dissolved in water and injected beneath the skin. Two doses of this kind produced a marked reaction and the patient recovered. Since that time he has treated several cases, always with success. For the belladonna he has substituted atropine sulphate, which is given in $\frac{1}{60}$-grain doses hypodermically, and repeated in twenty or thirty minutes if no decided effect is produced. A good dose of strychnine sulphate, $\frac{1}{30}$ to $\frac{1}{20}$ of a grain, forms an excellent synergist for the atropine. The treatment acts by stimulating the cardiac and respiratory centers.

Removal of Powder Stains.—

J. N. Rhoads, in *American Medicine* of April 6, 1901, treated a woman who ten days before had received powder stains of the face,

due to the explosion of a giant firecracker. She applied to a hospital for treatment, where several painful efforts had been made to pick the powder out of the skin. He employed the same method, when a chemist suggested that he use hydrogen dioxide. This was applied in full strength, and the patient was given a bottle to use at home. At the end of two days the powder stains had all disappeared.

A Piston Syringe for Vesical and Urethral Irrigation.—

J. R. Eastman, in the *New York Medical Journal* of April 13, 1901, describes a method for employing urethral irrigation without the necessity of the elevated container and the difficultly portable apparatus which has heretofore been used. It consists simply of an extra large metallic piston syringe of five-ounce capacity, armed with conical nozzle and protected by a concave shield. It has a couple of rings which can be grasped by the first and second fingers, the piston being operated by the thumb. He claims with this piston to be able to appreciate more accurately the distention of the urethra than with the ordinary hydrostatic pressure.

OBSTETRICS, GYNECOLOGY, AND PEDIATRICS.

Steam in the Treatment of Uncontrollable Uterine Hemorrhage.—

S. W. Bandler, in the *Philadelphia Medical Journal* of March 30, 1901, gives a *résumé* of some recent literature and observations of his own in the treatment of obstinate hemorrhage due to uterine arterial sclerosis. That it has not been devoid of danger in the past is shown by the fact that cases of necrosis with perforation and resulting peritonitis have occurred, as well as an obliteration of the uterine cavity. These have been due to the fact that in its application a tube has been used which did not permit of an escape of the steam, and the heated metal catheter caused a deep cauterization by direct contact. In the apparatus of Duhrssen these have been overcome by using a tube of fiber which does not transmit the heat. This tube is perforated, through which passes the metal tube conveying the steam. The outer covering protects the tissues from the direct action of the heated metal and forms a space for the exit of the steam and the discharges. In young women, to limit the action to the endometrium, the séance should last from fifteen to twenty seconds; but in those past the menopause, where it may be desirable to obtain an obliteration of the uterine cavity, the application may be continued from four to eight minutes. Experimentally it has been

found that when the thermometer in the boiler registers 100° C., the temperature of the steam entering the uterine cavity is about 70° C. The treatment is usually followed by a serous discharge for a few days or weeks; the necrotic tissue makes its appearance in from six to ten days if the action has been superficial, and in ten or more days if a deeper cauterization has resulted. Not infrequently after this treatment, irregular bleedings or one or two increased menstrual flows occur. The former are the result of the throwing off of necrotic tissue, and the latter gradually pass into normal menstruation.

In a case of chronic metritis with subinvolution, the uterine cavity measured twelve centimeters. Six months after vaporization the uterine cavity measured six centimeters. Prior to the application of the steam the patient had been curetted twice, and had been treated with local applications of iodine and with numerous internal remedies. Steam should not be used where malignant changes of the endometrium are observed, or with retained placenta or membranes. It is contraindicated in affections of the tube and in inflammatory conditions generally. Its most striking indication is the uncontrollable hemorrhages occurring especially at the climacteric and in those of earlier years, and which are probably dependent upon arterial degeneration of the endometrium.

Diagnosis and Treatment of the Toxemia of Pregnancy.—

S. Marx, in the *Medical Record* of April 20, 1901, says that the toxemia of pregnancy is a complex condition depending upon more than one factor. Albuminuria is an uncertain sign of a toxemic condition; when present, the symptoms are not due to the presence of albumin, but to the accompanying faulty excretion. In many malignant cases there is found neither albumin nor casts. In the uremias or true toxemias of pregnancy, urea is always markedly diminished, and he especially urges the methodical estimation of the output of this substance in all cases in which toxemia is present or is suspected.

We should relegate to secondary importance the time-honored examination for albumin; progressive diminution of urea excretion, with or without albuminuria, is an indication for the induction of premature labor, when medical treatment fails.

The prophylactic management of these cases is important, and the writer's rule is to estimate the amount of urea as well as examine for albumin and casts. The latter may be practically disregarded as danger-signals in the presence of a normal excretion of urea. He

does not attribute the symptoms of uremia to the retention of urea, but regards the amount of the latter excretion as an index of the functional activity of the organs in ridding themselves of toxic substances.

In threatened toxemia the diet should be largely fluid, given with copious draughts of water. Hot rectal and colonic injections given with the patient on her side, with buttocks elevated, are very efficient as direct urinary stimulants.

In the drug treatment of the condition he places foremost nitroglycerin, nitrite of sodium, chloral, and small doses of opium. Strychnine he reserves for cases in which there is a low-tension pulse. Veratrum viride will reduce both the volume and rapidity of the pulse, but such a condition of the circulation may be accompanied by severe convulsions. Venesection is indicated where there is high tension, rapid pulse, and a congested cyanotic face. Where such symptoms are present the indications for emptying the uterus are imperative. If free hemorrhage takes place from the organ after the expulsion of the fetus, it should be allowed to continue until the patient shows marked signs of the loss of blood.

Floating Kidneys in Children.—

I. A. Abt, in the *Journal of the American Medical Association* of April 27, 1901, reports five cases of floating kidney in children. The references to this condition in pediatric literature are very few. Comby reported eighteen cases in children varying in age from one month to ten years, sixteen of the cases occurring in girls. (The observations of Comby seem to negative the importance of corsets and tight lacing in the production of this affection in women. These causes have been advanced to account for the frequency with which the kidney is dislocated in women and its comparative infrequency in men, a proportion variously estimated at from 1 to 20 to 1 to 100.)

We are compelled to accept the congenital origin of floating kidney in young infants, and it is probable that in older children there is a congenital predisposition. The exciting causes may consist of an acute or chronic trauma, the latter having reference to causes which are constantly acting or which are of frequent occurrence, eventually dislodging the kidney from its fixed position. In two of the cases which came under his observation there was marked pulmonary emphysema associated with chronic bronchitis.

In children, as in adults, the symptoms are often latent. Pain is sometimes noted where the mobility is of moderate degree. In

some cases the patients suffer from paroxysmal pain, dependent probably upon a twisting of the pedicle. Associated with the pain may be colic, chills, fever, vomiting, and perspiration. The urinary secretion may be diminished and temporary or permanent hydronephrosis result from the twisting of the ureter. The kidney is usually sensitive, though not actually painful on pressure. Gastrointestinal symptoms are not infrequently associated with floating kidney; dyspepsia and constipation are often present. In the five cases reported by Abt, three were girls and two boys.

Duodenal Ulcer in an Infant of Ten Months.—

Vanderpoel Adriance, in the *Archives of Pediatrics* for April, 1901, reports a case of duodenal ulcer, which is of special interest from the fact that it occurred in so young a child. The infant had been fed very carelessly upon a mixture of cow's milk and barley water, with the occasional exhibition of solid food. That these indiscretions in diet were not followed by more serious consequences was probably due to the fact that breast milk formed the main food of the infant.

At the time the infant came under observation he was very restless, and there were marked gastrointestinal symptoms. The stools were curdy and contained mucus, there being three or four passages in twenty-four hours. There was frequent vomiting, which became worse. The abdomen became distended. The nutrition gradually failed for a time, after which there was an arresting of the downward process, but at the end of two weeks the symptoms again became aggravated, and death resulted.

At the autopsy was found just below the pylorus a small oval ulcer measuring one by two centimeters, situated in the posterior wall. Its base was near the head of the pancreas, to which it was firmly adherent. The margins were sharply cut, showing no induration. The remainder of the duodenum, as well as the neighboring blood-vessels, appeared normal. The small intestine was normal, and there was no enlargement of Peyer's patches. The large intestine showed numerous depressions in the mucous membrane which corresponded to hollow ulcerated solitary follicles. There was an increase in the connective tissue and of the lymphoid cells.

Puncture in Cerebrospinal Meningitis.—

Henry Koplik, in the *Medical News* of March 23, 1901, says that two distinct types of cerebrospinal meningitis are recognized; one pursues a severe course and is of a more fatal character, frequently occur-

ring with lobar pneumonia, caused by the diplococcus pneumonia. The primary affection of the cerebrospinal meninges is caused by the intracellular diplococcus, the so-called diplococcus meningitides. Five cases in the writer's experience are reported, all treated by lumbar puncture after the method of Quincke. The five cases were punctured fifteen times, including one dry tap. Fluid varying in quantity from three to fifty cubic centimeters was withdrawn at each puncture. In the series the punctures were performed from the fifth to the thirty-seventh day of the disease, fluid being obtained at all periods of the process. The fluid was commonly turbid on the fifth day of the disease; it then varied from turbid to cloudy and flaky, and even thick and purulent, but it coutinued turbid until the thirty-seventh day of the disease. Microorganisms were absent in only one of the turbid cases. In some cases cover-glass spreads showed microorganisms which failed to grow upon culture media.

Simultaneous Extra- and Intra-uterine Pregnancy.—

F. V. Cantwell, in the *Medical Record* of April 20, 1901, reports the case of a woman who had menstruated regularly since a miscarriage twenty-one months before. At the time she was seen the uterus was enlarged corresponding with the tenth week of pregnancy. The cervix was soft and swollen and the os open. To the left there was a small, sensitive tumor. There was pain and vomiting, which persisted for two weeks. The uterus had only slightly increased in size, but the growth of the tumor was marked. An operation was performed January 17 and a tubal pregnancy discovered. The hemorrhage which had taken place into the pelvis was from the fimbriated extremity of the tube. On the following day a three months fetus was discharged from the uterus.

FORENSIC MEDICINE.

The Poisonous Effects of Trional.—

Stuart Hart reports in the *American Journal of the Medical Sciences* for April, 1901, a case of multiple neuritis and hematoporphyrinuria following the prolonged ingestion of trional. In these pages we have frequently referred to the same condition as a result of the prolonged administration of sulphonal, and we had held the belief that trional was quite free from dangerous effects, a conclusion which must be modified in the light of Hart's experience. Nevertheless, the number of cases so far reported of untoward

effects following the use of trional are comparatively insignificant if one thinks of the enormous extent to which the drug has been employed. There is a well recognized relation between nervous disturbance and the use of coal-tar derivatives. In the opinion of Hart, neuritis has distinctly increased since the introduction of these remedies. Unsteadiness of the gait, epigastric pain, and high-colored or bloody urine have been noted as a result of the prolonged administration of trional.

The patient observed by Hart was a woman 50 years of age, who had been a sufferer from nervous depression, insomnia, and gastric disturbance for twenty years, but who, beyond a moderate anemia, presented no signs of organic disease. She had become habituated to the use of trional, but was induced to gradually give it up. A return of her insomnia early in 1899 led to a resumption of the use of the drug in fifteen-grain doses every second day. This was continued until April 20, when there was severe colic, nausea, and vomiting. Five days later the urine became dark-red, and on the following day diminished to ten ounces, almost black in color. From this urine a substance giving the characteristic spectrum of hematoporphyrin was obtained. Early in May the patient complained of severe pain in the elbow and a weakness of the legs. There was diminished sensation, and two days later there was marked loss of power in the extensor groups of the left arm and the left leg. The symptoms of the acute paralysis remained for some days and were followed by slow improvement. At the end of a week there was slight voluntary extension of the fingers and toes, but the electrical reactions still showed degeneration, and it was many weeks before the extensors reacted normally to the galvanic current.

A Verdict Against a Druggist for Dispensing the Wrong Medicine.—

The Lancet of March 23, 1901, has an account of an action recently brought against a druggist in Glasgow. The plaintiff, a Mr. Robertson, sent to the druggist in question two prescriptions to be filled. One called for an ointment and the other a potion. Later in the day he sent a messenger, the latter returning with one bottle. The messenger was again sent to the drug store with a request for the ointment and the prescription. The druggist said that they had no ointment and no prescription to deliver. The customer assumed that the bottle he had received contained an instalment of what had been ordered, merely tearing off enough of the wrapper to enable him to extract the cork. Had he torn off more, he would have

found an ordinary blue glass, fluted bottle such as is used for poisons, with a label informing him that it contained "Poison: Not to be taken," and further that it was intended for a Mrs. Robinson. As soon as the mixture was taken the plaintiff felt an irritation in his throat, and he went at once to the druggist to ask if a mistake had been made. The error was then discovered, and it was found that the mixture he had taken contained chloroform, belladonna, and aconite. The assistant, instead of sending for a medical man, administered an emollient of jujubes. Mr. Robertson, temporarily relieved and reassured, went to his home, but soon became very ill. A medical man was summoned, who succeeded in saving his life, but he was ill for a long time.

In defending the action brought against him the druggist made the most of the conduct of the plaintiff in not unwrapping the bottle, but the jury awarded the plaintiff 700 pounds damages. In summing up the case, the Lord Justice Clerk said that the defendants had two opportunities for correcting their mistake. When the plaintiff sent to ask for his prescription and the ointment, they ought to have suspected an error, and they had a further chance of minimizing the result of their previous lapse when the victim visited their shop and it was found that he had drunk a poisonous compound.

Examination of the Hair in Arsenical Poisoning.—

E. Knecht and W. F. Dearden, in *The Lancet* of March 23, 1901, say that arsenic is deposited in the appendages of the skin, where it is retained for a considerable time. This fact has been referred to in works of forensic medicine, but it seems to have attracted little attention. Arsenic when ingested is rapidly eliminated by the skin, and it can be detected in the urine for only a short time after its ingestion, and often a detectable quantity cannot be found in the urine at a time when the toxic effects of arsenic upon the peripheral nerves are pronounced.

The writers have examined six cases. Three were presumably healthy men and were not known to have ingested arsenic. The examinations of the hair in the latter revealed in each case a trace of the substance, but too minute to be estimated. In the case of a patient who was taking one-ninth of a grain of arsenic each day, a quantity equal to 0.3 in ten thousand was discovered. In two patients who were subjects of arsenical beer poisoning, arsenic was found in one to the extent of 0.3 in ten thousand, and the other showed a proportion of one in ten thousand. These results, the

writers think, show conclusively the value of examination of the hair in suspected arsenical poisoning. In estimating the arsenic in these samples Sanger's modification of Marsh's test was employed. To preclude the possibility of any of the arsenic being overlooked by reason of its being present in the hair in organic combination, the weighed samples (one gramme) were in each case dissolved in fuming nitric acid (specific gravity 1.5). After boiling in this until the violent evolution of nitrous fumes had subsided, the solution was transferred to a glass tube, which was sealed and heated for two hours to 250° C. The tubes were then opened with the usual precautions, and the solution was evaporated to dryness to expel all nitric acid, and then transferred to the Marsh apparatus. At least two estimations were made in each case.

Death from Drowning.—

Howard Lankester, in the *St. Paul Medical Journal* for April, 1901, says that the phenomena of death by drowning are still very obscure. Drowning alleged to be due to "cramps" is caused by a spasm of the respiratory muscles; it does not permit of either inspiration or expiration. He thinks that this is shown by the fact that persons struggling in the water are unable to cry out, and when they sink do not rise because the lungs are compressed.

In drowning due to asphyxiation, death is caused in one of two ways: The lungs at the time of immersion are empty, and the person inhales some water, with the resulting signs of suffocation. This is one of the cases in which resuscitation is possible. The other form is where the lungs are not empty at the time of immersion, and the person making an inspiration draws water into the finer bronchi, which is converted into froth by the expulsion of the residual air. This froth at the next inspiration is drawn into the still finer bronchi and air vesicles, thus blocking the entrance of air when attempts are made at resuscitation. Recovery in these cases is rare. Experimentally this difference in asphyxiation can be shown by taking two dogs and submerging them, the first one having the trachea plugged with a cork. This dog can be easily restored to consciousness, but the one that has no such protection against water entering the trachea cannot be revived.

Blindness Caused by a Tapeworm Remedy.—

C. H. Kohler, in the *Northwestern Lancet* of April 1, 1901, describes the case of a girl, 17 years old, strong and well, who procured two bottles of "Dr. Pusheck's Tapeworm Remedy." The

first bottle was taken in three doses, six hours apart. One-third of the second bottle was taken later—in all, one and one-third in twenty-four hours. Soon after taking the last dose there was severe pain in the bowels. The day following there was a slight headache which increased in intensity, and toward evening she became unconscious. The coma lasted nearly four days. At the end of that period she gradually regained consciousness and apparently suffered no ill effects from the action of the remedy, with the exception of total blindness. The pupils were widely dilated, the ophthalmoscope showing white nerve heads, all blood-vessels in the disks being obliterated. The intra-ocular tension was increased. Treatment was of no avail.

The writer speaks of the possible composition of the mixture. He excludes pomegranate because of the latter's known tendency to congest the retina, the opposite of the condition found in this case. The symptoms agree fairly well with a mixture of santonin and male-fern, the former producing the general toxic effects and the latter the ocular symptoms.

Three Cases of Cataract Following Lightning Stroke.—

Joseph Preindlsberger, in the *Wiener Klinische Wochenschrift* of March 28, 1901, says that comparatively few cases of cataract which have resulted from lightning stroke have been described in the literature. In the text-book of Vossius, published in 1888, eleven such cases were described, six of which were in both eyes. Recently he has seen three cases, in two of which both eyes were involved. These occurred in brothers, 11 and 13 years of age. These two children were in a house which was struck by lightning, and immediately lost consciousness. The older child soon recovered, but in the younger coma continued for two days.

A third case was that of a man who was struck and remained senseless for about ten minutes. The loss of vision resulting from the cataract began some months after the lightning stroke.

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ORIGINAL ARTICLES.

THE HEART LESIONS OF INFANCY AND CHILDHOOD.[1]

BY I. A. ABT, M.D., CHICAGO,

Professor of Diseases of Children, Northwestern University Women's Medical School; Assistant Clinical Professor Diseases of Children, Rush Medical College; Attending Physician Diseases of Children, Michael Reese and Cook County Hospitals; etc.

The examination of the child's heart presents no greater difficulty than the examination of the adult's. Cardiac percussion in children is a more favorable procedure than in adults, because the relative dulness can be easily and accurately determined. This is possible owing to the thinness of the chest wall, as well as to the fact that the heart is not yet covered with lung to such an extent as in adults. In consequence of this relationship of the heart to the chest wall, it is evident that the younger the child, the more precisely can the relative dulness be determined. The pathological changes which occur in the child's heart are simpler than those in the adult. This is to be explained in various ways. The heart is more tolerant of disturbances in general nutrition during the period of early life than it is in later years, and also the blood-supply to the young heart is so favorably provided that chronic inflammation of the muscle and fatty degeneration are of rare occurrence.

To illustrate the great resistance of the heart muscle of the infant, the studies of Ohlmuller (from Hochsinger, Die Auscultation des Kindlichen Herzens) are of interest. This author showed that the severe infantile atrophies, though causing great loss in weight in the individual tissues and organs, and even reducing the body to a skeleton, yet cause no such change in the heart. This

[1] Read at a meeting of the Tri-State Medical Society, held at Keokuk, Iowa, April 3, 1901.

organ does not lose in weight, and shows little or no degenerative changes. Fatty degeneration and brown atrophy are seldom found in the child's heart. The most important causal factor in the production of cardiac degeneration, namely, the diseases of the coronary arteries, are rarely present in children. The various toxic agents, as alcohol, lead, and tobacco, play no part in the production of the cardiac degenerations in childhood. The heart of a child is relatively larger than that of the adult, whereas the arterial system is relatively wider; in consequence, the blood-pressure in the aorta is less. As a result of this difference, the labor of the heart as well as the strain which it sustains is less. Compensation can more readily take place at this time than in later life. At about the time of puberty the arterial system diminishes in caliber, though the heart remains relatively large.

Auscultation.—In examining the child's heart, it is a good rule to place the child in an erect or sitting posture. The heart tones can be more distinctly heard in this position, because the organ is nearer the thoracic wall. This is particularly important if murmurs be present. The heart tones of children differ from those of adults in that the accent is upon the first tone. At the period of puberty the second tone becomes accentuated. The second pulmonary tone may become accentuated if the child is excited, but the accentuation should not be considered pathological unless this tone is constantly accentuated. Not infrequently one observes that there is a difference in the acoustic intensity of the tones at the beginning of the examination. When the child becomes accustomed to the manipulation, it usually becomes quiet, and this difference is not observed. On account of the thinness of the chest wall and the favorable conditions for the transmission of sound in the child's thorax, the heart tones are heard louder than in later life. For the same reason the heart tones may be heard over the back, on the abdomen, over the liver and the stomach. This sound transmission to distant regions is particularly marked if the heart's action be excited by restlessness or by pathological conditions.

Heart Murmurs.—Accidental heart murmurs occur very seldom in early childhood. After the fourth or fifth year of life they may occur the same as in adults. The murmurs caused by endocardial inflammation are, as a rule, not rough, but are soft, short, and blowing. The murmur is not always heard at the point where it originates. Thus it is common to find the mitral systolic murmur of insufficiency over the pulmonary area.

Etiology.—In my dispensary service Dr. May Michael collected

twenty-two cases of endocarditis. Two cases occurred between the first and fifth year; eight cases occurred between the fifth and the tenth year; eleven cases occurred between the tenth and the fourteenth year; four were males and eighteen females.

Previous or Concomitant Disease.—Acute rheumatism was noted in two cases, rheumatic pains in ten, tonsillitis in six, chorea in two, scarlatina in nine.

Mitral regurgitation occurred in fifteen cases; mitral regurgitation and stenosis occurred in four cases; mitral regurgitation and aortic regurgitation occurred in one case; and mitral stenosis occurred in one case.

The most important factor in the production of endocardial and pericardial inflammation is undoubtedly rheumatism. It is a well known fact that rheumatism is not always diagnosed in children; many of the vague pains from which they complain are rheumatic in character. The inflammation of the valve or of the pericardium may occur with a rheumatic arthritis, a chorea, or the so-called subcutaneous nodules may be the only evidence of a rheumatic condition. So frequently is cardiac inflammation associated with this disease that Cheadle was led to declare that cardiac inflammation was not a complication but a manifestation of rheumatism. Acute follicular tonsillitis bears a close and undoubted causal relation to endocardial inflammation. Scarlatina is a frequent cause of endocarditis and pericarditis. Pneumonia plays no small rôle in the production of heart inflammations. The other acute infections, as typhoid, measles, and variola, are only rarely a causative factor. Gonorrhea, which is rare in children, does not have the importance in the production of this variety of inflammation that it has in adults.

In our series of cases observed at the dispensary, scarlatina seemed the etiological factor in nine cases. This is a large percentage, and is to be explained by the fact that during the past two years or more scarlatina has been very active in the neighborhood of this dispensary.

Clinical Course.—In the children's ward of the Michael Reese Hospital records of fifty cases of heart disease are on file. These cases have all occurred during the last two years, and have been under the supervision of my colleague Dr. E. Lackner and myself. It is noted that mitral insufficiency was observed eleven times; mitral insufficiency and stenosis eighteen times; myocarditis twice; acute endopericarditis eleven times; congenital heart disease three times; exophthalmic goitre with mitral insufficiency once; aortic insufficiency and stenosis once; aortic and mitral insufficiency once;

dextrocardia once; mitral insufficiency and stenosis with tricuspid insufficiency once.

Undoubtedly the most striking fact in connection with this record is the unusually large number of cases of pericarditis which are reported. This is somewhat at variance with the observations of others. Whether it depends upon the fact that the most severe acute cases are brought to the hospital, or whether it is a mere coincidence, it is difficult to determine.

History of a Case of Periendocarditis.—B. S——, aged eight years, was admitted to the children's ward December 4, 1900. About four months ago she complained to her mother of moderate pains over the joints; no swelling was observed. At about the same time the child complained of being short of breath. The dyspnea became more marked upon exertion. She has grown much worse during the past week. Fever, headache, and precordial pain have been noted. The mother reports that the appetite has been lost; that there has been a short, annoying cough; the bowels have been constipated. The patient had measles when she was five years old.

Examination: The child is very anemic. Dyspnea is marked. The precordial region is prominent and bulging. Palpation of this area gives the impression to the examining hand of a purring sensation. The apex beat is indistinct, and is dislocated outward, lying external to the mammary line. The upper border of the heart is in the second intercostal space; the right border extends to the right margin of the sternum; the left border lies just outside the mammary line. The auscultation reveals a loud and characteristic friction rub over the precordial area; it is heard best over the middle of the sternum. A systolic endocardial murmur is heard at the apex. Over the lower left lobe and in the axillary region tubular breathing is heard; percussion over this area gives flatness. The child's temperature remained constantly high, varying between 101° and 104° F. It was noted that the precordial area increased in size from one examination to another. Dyspnea and cyanosis became more marked, and on the eighteenth day after admission to the hospital the child died.

The autopsy, made shortly after death, showed a heart in which the pericardial sac was almost obliterated; fresh adhesions united the pericardium to the heart. These could be readily broken up. The surface of the heart as well as the inner surface of the parietal pericardium was covered with fibrous ridges, giving to both a rough and uneven surface. The heart was very broad as the result of the dilatation, and its texture was soft. Incision into the myocardium

gave unmistakable evidence of inflammatory and degenerative changes. Fresh vegetations were observed on the mitral and aortic valves.

The Discussion of Pericarditis. — This case is of great interest because it illustrates the course of a case of typical acute pericardial inflammation. The friction rub was present very early in the case. It disappeared gradually as the area of cardiac dulness increased in size. This increase in the area of dulness is not infrequently due to pericardial effusion. In a majority of the cases of rheumatic pericarditis, however, the increase of the precordial area indicates cardiac dilatation and not pericardial fluid. Dr. Lees and Dr. Poynton (quoted from Broadbent), in a joint paper read before the Medical and Chirurgical Society in June, 1898, drew attention to the acute dilatation of the heart that occurs in rheumatism and chorea of childhood. From analysis of 150 cases of fatal rheumatic heart disease in childhood, they showed that cardiac dilatation is usually present, and a marked excess of pericardial fluid is very rare; in only twelve cases out of 150 was there excess of pericardial fluid amounting to more than two ounces. Ewart has called attention to the physical sign which, when present, is indicative of considerable pericardial effusion—that is, a circumscribed patch of dulness or impaired resonance occurs just below the angle of the left scapula, over which there is increased vocal fremitus, bronchophony, and bronchial breathing. This condition according to Ewart is brought about by a compression of the lung by the pericardial sac. But the accumulation of fluid in the left pleural cavity could, and I believe frequently does, give rise to this physical condition. In this way the dulness and bronchial breathing may be at times explained.

At the hospital my assistants and I have frequently noticed this sign, though the condition has undoubtedly occurred in those cases of pericarditis with extreme cardiac dilatation and a minimal amount of fluid.

Symptomatology.—The disease may sometimes be overlooked in children. It is not infrequently preceded by nervous symptoms, such as night terror, crying and walking in the sleep, and delirium. The respirations are hurried, the face is anxious, precordial pain is frequent, difficulty in swallowing is present at times. Vomiting may occur, and is to be regarded as a serious symptom and of grave omen. Dyspnea may become urgent, not only in those cases where fluid is present, but also where active dilatation and pericardial adhesion is going on.

Course of the Disease.—In some cases death occurs early in the disease. These are most frequently the cases where cardiac dilatation occurs rapidly. In some cases the fluid is so great in quantity that the cardiac embarrassment must be relieved by the aspiration of fluid. In other cases the pericardium becomes adherent to the heart. Children who are left with a heart in this condition are pale, anemic, and dyspneic. The heart muscle in these cases is always more or less damaged, and the pericardial sac more or less obliterated. In some of the cases the cardiac dilatation continues until passive congestion of the viscera with dropsy occurs; such a condition indicates a failing heart, and a fatal termination speedily ensues. Valvular lesions are very frequently associated with the acute pericardial inflammation. Vegetations varying in size are found upon the valve.

Clinical History of a Case of Acute Endocarditis, Manifested by Aortic Insufficiency.—J. C——, aged 12 years, was admitted November 26, 1900. The illness began nine days before, when patient was taken ill with fever, nausea, violent headache, vomiting, and abdominal cramps. On the following day patient began to cough, complained of shortness of breath, pain and distress in the precordial region. The fever was most marked at night; he was subject to rheumatic attacks, though he is said never to have had the articular variety.

Examination: The apex lies in the fifth interspace, external to the mammary line; it is diffuse and lifting in character. The upper border of the heart extends to the second interspace, the right border to the right edge of the sternum, and the left border to the apex. Upon auscultation one hears a loud though soft diastolic bruit over the aortic orifice; it is heard with equal intensity over the manubrium of the sternum. This murmur is transmitted into the carotids, as well as downward over the precordial area. A systolic murmur accompanies the diastolic. The pulse shows typical water-hammer variety, and the capillary pulse is readily elicited. The right hand and wrist are swollen and painful, and motion is limited. The temperature on admission was $100\frac{2}{6}°$, the respirations 32, and the pulse only 90. The fever continued for about three weeks. After this time the temperature fell to normal. The rheumatic pain and swelling noticed on admission was limited to the right hand and wrist. It spread in a few days to the shoulder of the same side. The dyspnea was marked; the little patient became breathless and cyanotic upon the slightest exertion in bed. The general condition of the patient gradually improved. He was kept quiet in bed for

three months, and shortly thereafter discharged from the hospital, with the murmurs practically unchanged though the heart was in perfect compensation, and the patient without subjective symptoms.

Symptomatology of Endocarditis.—In studying cases of endocarditis, we find that the condition naturally divides itself into three periods, that of acute inflammation, of compensation, and of heart failure. The symptoms of the acute condition are analogous to those observed in adults. The most important data for the diagnosis are derived from the physical examination, particularly auscultation. Endocarditis develops in the majority of cases during an attack of rheumatism. The auscultatory signs do not appear at once. The valves do not become insufficient or stenosed immediately; hence the murmur does not appear until after the lapse of a short time, at such time when the pathological process is established. Heart palpitation or a fresh exacerbation of fever frequently marks the onset of the disease in children. Older children frequently complain of pain in the region of the heart or of dyspnea; the respirations are increased; the pulse is rapid, or it may in some instances be irregular. Upon auscultation one is impressed with the fact that the first tone is muffled and not sharply outlined. Very soon, however, a distinct blowing murmur is heard, which is soft and is usually systolic in time. In a few cases the murmur may be rough from the very onset. Its point of intensity is most often at the apex. Systolic murmurs over the aortic orifice, as well as presystolic murmurs over the apex, are very rare. Murmurs occurring primarily over other cardiac ostia are not commonly observed. A marked reduplication of the second sound at the apex is to be regarded as strong evidence of an impending endocardial inflammation. Gradually the murmur, whatever its primary nature, increases in intensity, and takes on the character of a chronic valvular affection. At first the percussion shows only a slight deviation from the normal, but as the valvular function becomes permanently interfered with, the heart increases in length and breadth. The temperature which is nearly always present in the acute cases follows no fixed type.

The Prognosis of Endocarditis in Children.—In early childhood acute rheumatic endocarditis offers a grave or serious prognosis, because the condition is so frequently associated with pericarditis. This latter condition, as has already been shown, leads to rapid cardiac dilatation, myocardial inflammation, and adhesion between the heart and pericardial layers. In a word, the mechanical function of the heart is interfered with, and the organ itself is subjected

to serious degenerative changes. Recurrent attacks of inflammation at the affected valve are frequent. Each new attack cripples still more the heart valves and renders the prognosis more unfavorable. The growing child makes great demand upon the heart. If the heart be diseased so as to bring about a condition of hypertrophy, it is very evident that the disease, plus the usual demand upon the heart, speedily overtaxes it, and tends to a loss of compensation.

The prognosis depends not a little upon the severity of the original lesion. If the original lesion of the endocardial involvement at first is slight, it follows that the resulting lesion remains slight. On the contrary, however, if the primary involvement is a severe one, greatly crippling the valve or valves, dilatation and hypertrophy follow, and the mechanism of cardiac compensation will soon be lost. In some cases valvular lesion remains for a long time stationary. If there be no recurrent attacks of rheumatism, and if there be no degenerative or inflammatory changes in the heart muscles, or of the endocardium, compensation may remain for a long time undisturbed, and the patient may go about making the impression of being in excellent health. The habits and mode of life influence the progress of the disease. The child who can be controlled in its mental and physical activity, and who can be brought under the most suitable conditions of hygiene and environment, has better chances to struggle against the disease than one in whom these conditions cannot be regulated.

Intercurrent diseases may influence the course of the disease; severe anemia, bronchitis, nephritis, pneumonia, or any of the acute infectious diseases, tend to exert an unfavorable influence upon the cardiac affection. It is important, so far as the prognosis is concerned, which particular valve is involved. Walshe arranges the valvular affections in order of their relative gravity as follows:

1. Tricuspid regurgitation.
2. Mitral regurgitation.
3. Mitral stenosis.
4. Aortic regurgitation.
5. Pulmonary stenosis.
6. Aortic stenosis.

Broadbent arranges them, with respect to their relative gravity, as follows:

1. Aortic insufficiency.
2. Mitral stenosis.
3. Aortic stenosis.
4. Mitral insufficiency.

Without entering into a detailed discussion of the relative gravity of the various valvular affections, it seems a matter of common experience that after the condition has become chronic the mitral insufficiency causes less strain upon the cardiac mechanism, and is the least to be feared of all the valvular affections.

Can recovery occur after acute endocardial inflammation? There can be no doubt that many individuals who have suffered in childhood from rheumatic endocarditis have apparently recovered. In those cases where the inflammation was slight, and the injury to the valve not great in extent, perfect compensation may continue for years without causing the patient any subjective disturbance, and indeed the objective cardiac symptoms may disappear.

Prognosis in Pericarditis.—The prognosis in pericarditis is grave; death may occur during the acute illness, or owing to the associated endocarditis and to the pericardial adhesions. The ultimate chances for a long life are unfavorable; repeated attacks of rheumatism with pericarditis darken the prognosis.

Treatment.—The prophylactic treatment of pericarditis and endocarditis depends upon the fact that the majority of these cases are rheumatic. The salicylates should be used thoroughly and early. It is undoubtedly true that the salicylate of soda does not exert any direct effect on rheumatism of the heart already established, but nevertheless the drug limits the rheumatic process, and may possibly arrest its progress before it has seriously injured the endocardial or pericardial structures. There are those who believe that the administration of salicylates predisposes to cardiac involvement. There is not, however, sufficient evidence in support of this view to make it tenable. Alkalies used alone or combined with quinine or salicylates are warmly recommended in some quarters for the treatment of the rheumatic state. Rest in bed should be insisted upon and begun early in the disease. The external application of an ice-bag is used by many on the principle that cold inhibits cardiac action and exerts a favorable influence on the inflammatory process. Some clinicians advocate the use of hot applications; these are particularly indicated for the relief of precordial pain. Counter-irritation in the form of mustard paste or the tincture of iodine seems at times to give relief. To quiet the heart which is laboring as the result of endocardial or pericardial inflammation, small doses of aconite are sometimes employed. If, however, the heart's action be feeble, associated with cold extremities, or if there be the slightest suspicion that the patient is threatened with collapse, if there be cyanosis, or dyspnea, aconite is contraindicated in these cases. Opium in the form of

Dover's powder or small doses of the alkaloids may be employed. When a large pericardial effusion causes interference with the heart's movement, aspiration should be resorted to. The needle is best inserted in the fifth intercostal space a trifle to the left of the sternum. It should be directed upward and toward the axillary line. After the valvular lesion has become chronic the patient should be placed upon a nutritious diet. The patients frequently have no subjective symptoms, and require more than anything else rest in bed. Holt, in a recent paper, emphasizes the importance of rest after acute cardiac inflammations. He believes that dilatation comes on readily and progresses more rapidly than in adults. He would keep his patients in bed after these inflammatory attacks, not for two or three weeks, but for as many months. When the heart begins to dilate, and compensation fails, cardiac stimulants are indicated. Digitalis, strophanthus, convallaria, and caffeine are used. One or two minims of the tincture of digitalis or strophanthus, given three or four times daily, usually brings about the sought-for results. A recent writer decries the prolonged use of strychnine in these cases. He maintains that strychnine is of temporary, not of permanent, value. Strychnine is a whip to the heart, not a tonic. Iron and arsenic are indicated for the anemia which is so frequently present. After the patient has sufficiently recovered to be out of bed, he should be in the fresh air as much as possible. Massage, hydrotherapy, and light gymnastics improve the peripheral circulation as well as acting favorably upon the cardiac musculature, and are of value. Violent exercise is contraindicated. Severe mental work or worry, prolonged attention to studies, and school-work exert an injurious effect upon the heart disorders.

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MENTAL IMPRESSIONS AS A FACTOR IN THE TREATMENT OF DISEASE.

BY J. G. BILLER, M.D., CHEROKEE, IA.

There can be no doubt in the minds of thoughtful physicians that we pay too little attention to the psychical condition of many of the patients who come under our care. We are too apt to look upon them as physiological machines, losing sight of the wonderfully sensitive brain which presides over the various organs. It is strange that such should be the case, for almost every day brings to our view instances that plainly demonstrate the far-reaching disturbance that is wrought in the whole body by a trifling mental impression. It may be nothing more than a sudden and unexpected question, and the individual's face becomes flushed, he trembles, hesitates, stammers, and feels weak and exhausted; or it may be the sight of a few drops of blood, and at once the face becomes white and deathlike, great drops of cold perspiration stand on the forehead, the hands become cold, the head swims, and the unfortunate victim falls unconscious; when consciousness returns there may be vomiting, weakness, and sickness for several hours. We are so familiar from childhood with these conditions that they pass unnoticed, excepting as a peculiarity of the person, which amounts to nothing. This is probably true, from a therapeutical standpoint, as far as these simple things are concerned, but they should serve as valuable lessons in showing us the necessity at the time we are called to attend our patient of carefully weighing the probable influence of past and present mental impressions and conditions on them.

If we will bear in mind all the temporary phenomena that have been produced by the brief fear or embarrassment of the sudden question, we will have no trouble in understanding how a serious disturbance may be caused, if that fear becomes greater and is continued for a considerable time, or where it becomes permanent. This is something a physician should never lose sight of; always remember that you may easily frighten a patient into an uncomfortable state; you may not scare him to death, but may frighten him into a state of suffering that is worse than death; you may do this simply by looking serious, or by making some unguarded remark; or it may be that we are foolishly frank with the patient, revealing to him whatever of fear or doubt there is in our mind. We should remember that sickness often weakens the mental cour-

age, and things that in good health would not be noticed become of great importance to the individual who is already anxious over his condition. I had recently a patient who passed a sleepless night, was nauseated, nervous, restless, and unable to take food. All this was caused by my being tired and looking worried; he at once assumed from my appearance that he was worse. We often do much harm to our patients by becoming frightened and being unable to conceal the fact, and still worse by making unfavorable remarks during our fright. I have seen such things done to the detriment of the patient. For instance, a neurasthenic woman who had fainting sensations was terribly frightened by a physician saying she probably would not live until morning; as a result of this statement she was confined to her bed for seven weeks, and would hardly turn over, fearing the exertion would cause her death. Finally the attending physician had to lift her out of bed and stand her on her feet and force her to walk, to convince her that she would not die if she stood up; this was repeated several times before she would get up herself, and at present, although she has nearly regained her health, she is still anxious and nervous about her heart.

We should use great judgment in talking to our patients about the probabilities and possibilities of their disease, and our honesty should be of a discreet kind, and not always as open and thoughtless as was the physician's in the following case of phlegmasia alba dolens. In this instance he was absolutely honest; he told the patient frankly that she had a milk-leg, and explained the necessity of her remaining quiet, the possibility of an embolism being carried to some of the vital organs, and the dire result of such an accident. His treatment was very proper; but from the time of his visit the pain began growing worse, the woman was restless, was unable to take nourishment, or to sleep. Being unable to get the physician who was first called, this was endured for two days and nights; then another physician was called, who after a careful examination assured her that she would certainly recover, and that her condition was not serious. Upon her doubting this, it was repeated with emphasis and insisted upon. The treatment was but slightly modified. That night she slept a considerable portion of the time, and the next day was feeling much better; although she was unable to be out of bed for two weeks, she really had no further trouble. She afterwards said she was afraid to sleep for fear she would never waken.

We are not always as successful in getting rid of fear as in the cases just cited, and it may in some instances be fatal in its results. I once knew a student in one of our great universities who had two

older brothers who had attended the same school, each dying in his junior year. In this man's junior year he conceived the idea that he too would die. Soon he consulted a physician, who was unable to find anything the matter with him. In a day or two he was confined to his bed, and in spite of all assurances to the contrary he persisted in saying he was going to die just as his brothers had, and he did die. A very carefully conducted post-mortem failed to show any cause for death; while there was no direct evidence to prove that this young man's death was due to the mental impression which he had, there was no other cause that could be discovered, either before or after death. These three cases briefly call your attention to some of the harm that may be caused by fear, which, like many other things, may be either a benefit or an injury, according to the judgment exercised in its use. It is a therapeutic remedy of some considerable value in many disturbances of the nervous system. We have abundant evidence of its power to relieve pain, as the stopping of a toothache at the sight of a dentist and his forceps; but its chief use is to furnish a strong incentive that strengthens the will of the patient, and makes him exercise mental force, which he otherwise would not use. Hysterical vomiting has been controlled by the threatened use of the stomach-tube, hysterical neuralgia by talk of using a fly-blister. I once saw the anxiety over a sick child cause the disappearance of a severe and almost constant enteralgia of many months' duration. I have called attention to fear for the purpose of showing some of the disastrous results, rather than to advise it as a therapeutic measure.

A short time ago in talking with a friend who is interested in Christian science, he related among other miraculous things the case of a woman who one night became nervous and seemed to be suffering much pain. At her request he went for the Christian science healer, who told him that it was not necessary for her to see the sick woman, that she would give her an absent treatment; and he thought it quite wonderful when he returned and found the woman was better and soon after went to sleep and slept the remainder of the night. He looked a little skeptical when I told him that we often relieved our patients that way, but generally went to see them so as to collect our fees and to be sure the absent treatment had not run off on some side track or cured the wrong person. The fact is I was telling him the truth as far as relieving our patients in that way is concerned, for we often do. Did you ever stop to think why, in a great majority of the cases to which we are summoned in a hurry, where the patient is suffering almost beyond endurance, we

hear the same old story: he or she got better just after we sent for you? Why does this happen so often? Just for the same reason that an old lady's lumbago was always cured by a belladonna plaster given her by a certain doctor, and was never benefited by the ones she got from the drug store, although she usually waited in the doctor's office while he, without her knowledge, sent to the same drug store for the one which he gave her. What is that thing that puts extra virtue in the belladonna plaster—that relieves the sufferer as soon as medical help is sent for? It is mental relief, brought about by confidence. Confidence is a powerful factor in the treatment of disease; we too often think that it is in nervous or hysterical patients that this cuts much figure, but I am convinced that such is not always the case, unless all people become more or less hysterical when they are sick. We have every day demonstrations of the great benefit of confidence on the part of the patient; when it happens to be confidence in ourselves, and a lack of it in some one else, it, of course, is nothing more than good judgment on the part of the patient in being able to appreciate our superior skill and ability; but if the thing balances the other way, and we are unable to inspire as much confidence as some other fellow, it is simply a crank notion of a hysterical individual. I think when we find these hysterical cranks, the best thing for us is to slide out of the case as quietly and quickly as possible, and let the misplaced confidence dictate our successor.

The welfare of our patients and ourselves requires the use of every legitimate means to prevent them from degenerating into hysterical cranks of the above class. Much of our success as physicians depends upon our ability to do this. Too often we become so interested in the disease, its pathology, therapeutics, etc., that we forget all about the patient and his peculiar likes and dislikes and nervous fancies, till we are suddenly aroused by his sliding out of our hands into some one else's grasp, possibly a quack; and many an honest and capable physician has been surprised to see a former patient grow better under the treatment of some charlatan, whom he knows to be absolutely ignorant of medical science. If we will lay all prejudice aside, and carefully study what it is that has made the ignorant pretender successful when skilled scientists have failed, we will in nearly all cases find it is through some form of mental impression, possibly assisted by a little crude medical treatment. We all know the means that are used by these people to fill the minds of the laity with confidence in them: there is the bold advertisement of their wonderful skill, and a description of their marvel-

ous cures, and later, when they see the patient, they are absolutely sure that a cure can be brought about by means of their supernatural skill, and the patient is convinced. If nothing else forces him to get well, he is often cured by pride, which makes him ashamed to acknowledge that he has been foolish enough to go to a quack and be deceived; so he gets well, simply to demonstrate to his acquaintances that he recognized a good thing when presented, and is capable of making a wise selection in doctors.

After watching various forms and kinds of regular and irregular practitioners carefully and honestly, I am convinced that there is much therapeutic value in a strong assurance that we can cure the patient. It is a remedy that should be used like opium, with great care and discretion, or the dispenser may get into deep water; but there is no doubt in my mind that, like the priceless drug I have named, it is a valuable remedy, for it gives mental relief, which is often as necessary as relief from physical pain. We often err in not using it, and then going to work as if we meant business; half-hearted attention to treatment on the part of the doctor at times does much harm, or at least prevents the patient from being benefited. Sometimes more good is done by the manner in which the remedy is applied than by the remedy itself. I recall a case in which I advised the use of the faradic current. The patient was a neurasthenic man, who had hysterical attacks. I was particular, in talking to the attending physician, to call his attention to the fact that it would be necessary for him to use the battery himself, and to be exact about its use; instead of doing this he showed the wife how to use it. He afterwards told me that the electricity did no good, but a clairvoyant came along and cured the man. Electricity would have cured him, if properly used. You may say that nothing ailed him, and such treatment was only a humbug; it would be hard work to convince that man or his friends that nothing ailed him the five or six months he was so miserable, and I think that if one of us were in the same condition we would also be hard to convince.

I do not think any treatment that brings about the desired end a humbug; people employ us to relieve them of the disease they are suffering from, or think they are suffering from, and whatever means is necessary must be used, no matter how ridiculous it may seem to us.

It is a question well worth considering how much suggestion will do. Will it have effect upon organic lesions of any kind? I would hardly expect it to; and, in fact, I never gave this part of the subject a serious thought, till the last year an instance occurred that

surprised me. Among my very early patients was a woman who had a large ulcer on her leg; she had been possessed of this for several years before I first saw her, sixteen years ago. I have succeeded in healing the ulcer four or five times in the past. Three years ago she appeared with a bad bronchitis of several months' duration, and the ulcer more than two inches in diameter. I tried every means at my command, while the patient was attending to the numerous duties of a farmer's wife, to persuade the tissues to draw together and banish the sore, but it daily grew a little larger in spite of my treatment. Eighteen months ago she stopped coming; six months later her bronchitis returned, and she came to me for treatment, but contrary to her usual custom she was absolutely silent regarding the leg. This somewhat excited my curiosity, and I persisted in my inquiries till she rather reluctantly told me that she had gone to a man who, when the planets were in certain relationship to each other, was able to perform wonderful cures; he had simply laid his hands on the ulcer and told her to wash it each morning and lay a damp cloth on it, and in six months it would be well; and it was well, and remained well for eight or nine months. The washing and damp cloth had been tried before with unfavorable results.

I have no comments to make on this case, although I have thought about it a great deal. In closing this paper I wish to say that I am convinced that we become too practical, or as the ministers say, too materialistic; we lack appreciation of the subtle forces that have so much to do with the well feeling and well doing of the body, and until we are able to comprehend and appreciate them, and understand how to control and correct their irregularities, we must expect to meet with patients who will not yield to our treatment, and who will run after strange gods, in the shape of quacks, fakes, and fanatics, and who will receive wonderful cures from these sources.

THE ETIOLOGY OF ACUTE RHEUMATISM.[1]

BY F. W. MANN, M.D.,

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No attempt will be made in these brief remarks to summarize antecedent theory of the etiology of acute rheumatism. Such would be but the record of one retreat after another from untenable positions. The embolic theory, the lactic acid theory, and innumerable others are interesting in an archaic sense, and serve to show how those who ventured on hypotheses which were but plausible conjectures had, when their aerial castles were dissolved, straightway to begin to construct new ones, or to hide their disappointment behind meaningless sophisms. The past etiology of rheumatism was "without form and void and darkness on the face of it." The true etiology of rheumatism is now being worked out, not by undaunted flights of conjecture, but by the inevitable inferences resulting from the empirical consecution of ideas.

We may therefore dismiss with curtness reference to certain immemorial factors in rheumatic etiology. The treatises of those who have written on the subject in the past abound in speculations as to whether "personal susceptibility" or "morbid opportunity" were the most important etiological factors, and the matter has never been actually determined. Cold and catching cold, once deemed causative agents of prime importance, assume secondary responsibility, as does geographical position. The Eskimo, in the frozen north, has rheumatism, and it is credible they suffer from it in Tartarus. Occupation was esteemed an important factor, especially if it entailed exposure. It is difficult to select one occupation which is specially afflicted. Those who work for the trusts, and those who do not, are equally liable to the disease. If age be a factor of much importance, it comes from the fact that the new-born child is not too young nor the centenarian too old. Sex is of equal importance, for if there were three sexes, all would have rheumatism. Miasms and unknown epidemic agencies, always considered important factors, seem to be simply obfuscatory strategies for giving dignity to ignorance. Celebrated practitioners have derived handsome emoluments by telling their patients that rheumatism was the result of hereditary predisposition, an explanation which, simmered down to its essential residuum, is equivalent to telling a man he is the son of his mother. Nevertheless, heredity is of prime importance from the etiological

[1] Read before the Michigan State Medical Society.

standpoint. Muscular exertion was once deemed a causative factor, and may be still considered so by those of slothful mental and bodily habits, blind to the beauties of golf. In fact, of all the etiological factors which found favor in the conceptions of the antimicrobians, two only were of much value. An intimate connection was asserted to exist between rheumatism and gonorrhea and rheumatism and scarlet fever. When later it was shown that the arthritis of gonorrhea was due to a specific organism, and when the arthritis of scarlet fever was proved streptococcic in character, then the true etiology of rheumatism rose like a new star on the pathological horizon.

Since Huetter first advanced the notion that the true etiological factor of rheumatism was a specific bacillus, a vast amount of effort has been expended on its discovery. So that during the last few years the cause of rheumatism has been found to be a streptococcus, then a staphylococcus, then a staphylococcus that assumed a streptococcus form, then a diplococcus that came in streptococcal chains, then a diplococcus that came in staphylococcal masses, then a diplococcus of special characteristics. Achalme described an organism found in the blood in cases of rheumatism with cerebral complications, a bacillus resembling that of anthrax, readily stained with aniline dyes, anaerobic, and causing inflammation of serous membranes when inoculated into guinea-pigs. Triboulet has found associated with Achalme's bacillus a diplococcus which was anaerobic. Last year important investigations were made by Westfall, Wassermann, and Wolcott, based upon cases of polyarthritis followed by chorea. A microorganism was found which when injected into the blood of animals resulted in high fever with multiple joint involvement. In the joint exudate these observers found microorganisms which gave rise to multiple joint involvement when injected into a new series of animals. On culture the organism was found to be a streptococcus, but in the blood this streptococcus was found to present itself as a diplococcus also.

Poynton and Payne, who made the most important contribution to the bacteriology of rheumatism in 1900, have presented a further contribution upon the subject in March of this year. In fourteen cases of rheumatic fever a diplococcus was found which grew in liquid media in streptococcal chains, and on solid media in staphylococcal masses. They draw attention to the resemblance between these diplococci found by them and the organisms found by Westfall, Wassermann, and Wolcott. Blood obtained from a fatal case of rheumatism was inoculated into a rabbit, with the result that

three days after there was swelling of the joints with loss of flesh, and death at the end of ten days. From the articular fluid obtained from the same inoculated animal the same organism was found. Poynton and Payne have now discovered these diplococci in the blood of a case of rheumatic pericarditis. Two fatal cases of rheumatism show the same diplococci on the heart valves or in the pericardia, and in a fatal case of chorea the same diplococcus was found. They do not, however, claim that this diplococcus is the only cause of rheumatic fever, but their investigations certainly prove that it is one cause. Poynton and Payne's work should be repeated by other observers. Their experiments, however, have been so carefully conducted that strong evidence will be needed to overthrow their conclusions.

In an article in the *Deutsche Medicinische Wochenschrift* on February 7 of this year, Dr. Fritz Meyer contributes a notable paper on the etiological factor of polyarthritis. He records having obtained six cases of typical articular rheumatism from the tonsil mucus of those in whom he could breed bacteria similar to those he found in human polyarthitis. These bacteria he describes as small diplococci arranged as streptococci. They stain well with ordinary stains; they grow poorly upon the ordinary media, but better in media of high alkalinity; they flourish upon blood agar. He made control experiments from the throat affections of scarlet fever, sepsis, influenza, tuberculosis, and muscular rheumatism, but he did not get the same results as with the above mentioned diplococci. Meyer's experiments do not go any further than Poynton and Payne's in determining with certainty the etiological factor of acute rheumatism, but emphasize the importance of a long-standing clinical observation regarding the relationship of angina and polyarthritis rheumatica first mentioned by Eyarlen in 1789, in his essay "Materia Rheumatica ad Tonsillas Deposita."

Sifting current investigation, it may be said that the true etiological factor of rheumatism is an infective microbe, most probably a diplococcus, that it has an affinity for serous membranes, and that this same diplococcus is the etiological factor in malignant rheumatic endocarditis, often in endocarditis valvularum, probably of chorea rheumatica, possibly in certain forms of pleuritis, and probably in some forms of peritonitis. This organism may not be the sole cause of acute polyarthritis rheumatica. That there may be others is to be inferred from the etiological relations of the gonococcus.

BOOK REVIEWS.

OBSTETRIC CLINIC. By Denslow Lewis, Ph.C., M.D. Price, $3.00. Chicago: E. H. Colegrove. 1900.

This is a series of thirty-nine clinical lectures on practical obstetrics and gynecology, delivered in Cook County Hospital since 1887. They have been published from time to time in various medical journals, abstracts from which have, not infrequently, appeared in MEDICINE. The author in his preface apologizes for adding another text-book to the already abundant supply, and he doubts the advisability of preserving the extemporaneous remarks explanatory of diagnosis and treatment in a permanent form. The writer disclaims any effort to produce a text-book.

The clinical lecture has always been favorably received by the medical public. It has always been a prominent feature in the contributions to *The Lancet*. There is a weekly medical publication in England devoted to clinical lectures exclusively, and in this country we have had the very successful series of International Medical Clinics. There is something about the description of a case with the remarks upon it made by an able teacher that gives it a distinct value, and, notwithstanding the fact these communications can be criticized on the ground that they contain little that cannot be found in the text-books, there will always remain a demand for them.

In the thirty-nine lectures which Dr. Lewis publishes in this collection we have most of the complications of labor described, as well as the more common gynecological operations. We shall not attempt to comment upon them in detail, as the space at our disposal is inadequate. The style of the writer is terse, direct, and never ambiguous; hence the volume is readable.

A SYSTEM OF PRACTICAL THERAPEUTICS. Volume III. Edited by Hobart Amory Hare, M.D. Second Edition, Revised and Largely Rewritten. Philadelphia and New York: Lea Brothers & Co. 1901.

The third volume of Hare's Therapeutics deals almost exclusively with surgery. The first article is upon anesthesia and anesthetics, and the second on surgical technique, including the principles of asepsis and the treatment of wounds. The article upon fractures and dislocations forms a small treatise upon this subject, covering 120 pages. It includes the latest methods of treatment.

Among the special articles which would be difficult to find considered separately in other text-books is one upon aspiration, another upon peritonitis, non-operative and post-operative, together with the usual operation for appendicitis and the management of paratyphlitic abscess. The article upon the rectum is contributed by Joseph A. Matthews; that upon the therapeutics of the male genito-urinary tract by W. T. Belfield; and that upon the diseases of the same organs in women by E. E. Montgomery. Some of these articles are strictly surgical, while others deal with treatment other than operative. Taking the volume as a whole, it is perhaps more of a surgery than a work on therapeutics. It is issued in uniform binding with the two which have preceded it.

A Text-book of Gynecology. By Charles A. L. Reed, A.M., M.D. New York: D. Appleton & Co. 1901.

The work of Reed is very different from most of the composite text-books which have been placed upon the market. The arrangement adopted is certainly superior to that heretofore employed, which has simply produced a series of monographs upon special topics which are bound together in a volume and labeled a system or handbook, as the case may be. The volume before us is the product of thirty-one contributors. An examination of the body of the work does not show who has written the different parts, but this can be learned by a reference to the table of contents, in which each portion of the book is credited to the man who prepared it. In this way a single topic may have several contributors. Thus in the chapter on neoplasms of the external genital organs, Herzog and Rothrick contribute that portion dealing with the pathology of the subject, while Reed discusses the operative treatment. Any overlapping of the topics, or serious omissions, have been avoided by the careful editing which the work has received. The illustrations are new, and for the most part original. They have all been made by R. J. Hopkins, the most of them being quite artistic.

We have heretofore expressed our doubts of the value of text-books written by several authors. The system adopted in Reed's Gynecology is one which secures many advantages and obviates most of the disadvantages of joint authorship.

The Treatment of Fractures. By C. L. Scudder, M.D. Second Edition, Revised. Price, $4.00. Philadelphia and London: W. B. Saunders & Co. 1901.

The first edition of Scudder's work on fractures was published in 1900, and in less than a year a second has been called for. On its first appearance the work was extensively reviewed in these pages and highly commended, a judgment that must be repeated regarding the second edition. Of the numerous works upon fractures and dislocations that have appeared in the last few years, this one of Scudder is the best. It is not written upon any one theory such as the *x*-ray in diagnosis exclusively, the ambulatory method of treatment alone, or the necessity of cutting down upon all fractures and wiring the bones together. All of these methods are referred to in the book, as well as the recent advances which have been made in our knowledge of and the treatment of fractures, without sacrificing older and still valuable methods. The work is distinctly clinical, and from this standpoint is especially useful to the general practitioner. The newer methods are very interesting and many of them highly scientific, but the fact remains that nine-tenths of the fractures which occur must be treated without the application of the *x*-rays because the machinery for their production is not at hand, and for the same reason most fractures cannot be cut down upon and wired because the aseptic operating-room and the skilled surgical nurse are not available.

A Text-book of the Diseases of the Nose and Throat. By D. Braden Kyle, M.D. Philadelphia: W. B. Saunders & Co. 1900.

Within a short time a second edition of Kyle's work has been called for, the first having appeared in September, 1899. There has been very little revision in the second edition, but it easily remains one of our leading text-books

upon the subject. It is not as exhaustive as some which have appeared; it has 646 pages, and the style in which it is written is very concise. It forms a complete work upon the diseases of the nose and throat, and there is sufficient amplitude in the descriptions to make them satisfactory for the practitioner who is seeking information to guide him in the diagnosis or management of a case. The work is a fine sample of modern book-making; it has 175 illustrations, 23 of them in colors.

THE INTERNATIONAL MEDICAL ANNUAL, 1901. Price, $3.00. New York: A. B. Treat & Co.

This is the nineteenth year of this popular annual, which serves as a review of treatment and a practitioners' index, and which has been deservedly popular in England. The contributors are thirty-four in number, and are, with few exceptions, British practitioners.

The volume, which is a very compact one of 682 pages, covers the entire field of medicine, but deals more especially with those advances which are of practical importance, and such improvements in the treatment as are available in the ordinary practice of medicine. The present volume includes special articles upon *x*-ray work, color-blindness, and dental and oral surgery. Special consideration is given to toxins and antitoxins, and there is an important article dealing with serum therapy.

PRINCIPLES OF SURGERY. By N. Senn, M.D., Ph.D., LL.D. Third Edition, Revised. Price, $4.50. Philadelphia and Chicago: The F. A. Davis Co. 1901.

We shall not attempt an extended review of Senn's Principles of Surgery, as they have already been for eleven years before the profession, the two former editions having been received with marked favor. With the appearance of the first edition, it formed an epoch-making work, serving as it did to ground practical surgery in those general principles of pathology and bacteriology so necessary for the successful application of surgical principles. This last edition has been thoroughly revised and two new chapters added, one on degeneration and the other on blastomycetic dermatitis. The work contains 700 pages, is beautifully illustrated, having 230 wood engravings and half-tones and numerous colored illustrations.

LEADING ARTICLES.

PRODUCTION AND USE OF THE ROENTGEN RAYS.[1]

There are many things that are obscure in the Roentgen rays. It is generally believed that they are transverse ether vibrations of very short period, wave-like, and are produced by the bombardment of the anticathode by the highly charged molecules which form the cathode stream. According to the conditions of the experiment, nearly all the rays may pass through, or nearly all may be absorbed by, the tissues of the body. Success in radiography consists in proportioning the grade of rays to the tissues which they have to traverse so as to produce the greatest amount of contrast. They must penetrate some of the tissues completely and others not at all.

Thin structures such as the hand are not difficult to skiagraph, but when it is desired to obtain pictures of structures which lie at a considerable depth, and particularly deeply buried foreign bodies such as renal and biliary calculi, the absorptive index of which is not very different from that of the tissues around them, the problem is difficult. In such cases, before making a skiagraph, undertake a thorough investigation with the screen. With the latter instrument it is possible for the observer to seize upon the moment when there is some slight difference in the degree of penetration and a shadow is thrown for an instant upon an otherwise bright field. Often contrasts are detected in this way which only last for an inappreciable space of time. The most valuable information is obtained by watching these changes. A sensitized plate, on the other hand, records the sum of all the effects which have been produced since the beginning of the exposure. If the latter is prolonged, it may obliterate all that has been produced before. The rule therefore is: *the shorter the exposure and the greater the volume of light, the better the result.*

In attempting to make a skiagraph of the deeper structures, a tube with a high vacuum and short exposure is necessary.

In the order of their penetration, the various calculi are arranged as follows: Biliary, uric acid, phosphatic, and oxalate of lime, the first giving the lighter shadows and the last the most dense. One difficulty in obtaining shadows of biliary and renal calculi is the respiratory movements. This may be to some extent overcome

[1] Abstracted from an article by L. Herschel Harris, member of the Roentgen Society of England and Honorary Skiagrapher to the Sydney Hospital. *Australasian Medical Gazette*, Jan. 25 and Feb. 20, 1901.

by directing the patient to breathe deeply several times and then suspend respiration for as long as possible. During the respiratory movements the current is interrupted, it being only turned on during the period of apnea, when the thorax is at rest.

Better results are obtained in patients who are thin and anemic, with poor muscular development, than in those who are stout with well developed muscles.

In the use of the *x*-rays remarkable variability is noted. Sometimes the abdominal aorta stands out very distinctly in front of the lumbar spine, and again the falx may be seen distinctly through the cranium. Some muscles stand out with great distinctness. The problem is how to obtain these results at will. Much is to be gained by manipulation of the tube. The quantity of light as distinguished from its penetration power is most important. The best results in soft tissues are obtained by the use of soft tubes. The distance of the tube from the part to be radiographed is also a matter of importance. The greater this distance, the better the definition. If the tube is too near the part, only those objects near the surface have good definition. The further the tube from the plate, the longer the exposure, and a doubling of the distance quadruples the exposure.

The Apparatus.—The favorite means of producing *x*-rays at the present time is the Ruhmkorff coil, of such size that it will give a ten-inch spark. The most important part of the coil is the break, and it is generally admitted that the best results are obtained by the mercury interrupter; one of the best is that manufactured by Isenthal, which may be adjusted for any number of breaks from 100 to 50,000 per minute, and is noiseless. This interrupter is adaptable to any voltage up to 250, and it does away with rheostats, which are generally required in using coils from the mains direct.

Static Machines.—These have recently been so improved that they have become practically useful in *x*-ray work. The Wimshurst produces a current of sufficient voltage to light any tube to which it is directly conveyed. This is a simplification in the means of producing *x*-rays, along which future progress in the art will lie. The chief advantages of static machines are that they are at all times ready for use, and that they produce a steady, continuous flow of electricity of such a character that the charge may be accidentally passed through a patient without causing injury. The direction of the flow of electricity does not change when once started, and the voltage is sufficiently high to excite tubes of great resistance. For screen work the lighting is constant, and there is no need of a costly and troublesome system

of accumulators, rheostats, coils, contact breakers, and other complicated appliances.

Tubes.—The proper selection of a tube is one of the most difficult and important points in connection with *x*-ray work. A tube should be tried with a screen before it is purchased. A marked difference will be found between tubes of the same size made by the same makers and apparently similar. Moore gives the following as the points upon which to choose a tube: (1) The pencil of light from the cathode should strike the anticathode very near the middle; (2) as little as possible of the light should be behind the anticathode; (3) only a very little blue should be seen behind the anticathode; (4) the connections should be well made, the ends preferably having brass caps attached to the tube by plaster of Paris; (5) a tube should show well on the screen with a six-inch spark, but tubes that are best adapted for screen work do not make the best skiagraphs; (6) flaws in the glass are always weak points; (7) in choosing a tube by the screen, one should not be satisfied with a showing of the hand and arm, but the ribs or hip-joints should also be seen.

The large German tubes, strongly made, are durable. They may now be obtained with a self-regulating apparatus by which the vacuum is altered at will.

It requires great experience to select the best tube for the case under examination. It is well to have a number, those with the low vacuum and those with the higher, so that a proper selection may be made. It is the tendency of all tubes to increase in vacuum, which may become so intensified that no *x*-rays are produced.

The penetrating power of tubes can be accurately measured by a simple instrument, the actinometer. It consists of twelve squares of tinfoil placed on a thin board, the first consisting of one sheet only, the second of two sheets, and so on up to the twelfth square, which contains twelve sheets of tinfoil. Each square is fitted with a figure cut out of sheet lead. If this board is placed between the tube and the fluorescent screen, we have an accurate means of estimating the penetrating power of the tube.

Sensitized Surfaces. — Most of the plates upon the market are good; some of the slow ones give better outlines than the more rapid. The latest product is a Cadett *x*-ray paper. This is claimed to have very great advantages over the plates, as exposure is much reduced over the most rapid dry plates. In addition there is freedom from breakage, adaptability, and portability.

Method of Localization.—The principal apparatus for this purpose

are those of Davidson and Hedley, the latter being accurate and complete, but costly. In all methods of localizing the position of a foreign body it is essential that two distinct skiagraphs should be taken, that they may be superimposed upon the same plate. The position of the tube must be changed in the interval between the taking of the first and second pictures, and the distance through which the focus has been moved must be ascertained. It is essential to know the points on the plate where it is met by lines drawn perpendicular to it from the focus. The position of these points is ascertained by the use of a plumb line, and in order to secure accuracy the plate must be leveled before the pictures are taken. In addition to the difficulty of using the plumb line, there is the necessity of stretching two fine threads and measuring the position of the point where they cross one another. All these difficulties are overcome in the apparatus devised by Davidson. Recently Barrell has devised a simple apparatus consisting of two metal cylinders which are placed upright on the plate during the exposure. After the first shadows of the cylinders are obtained they are shifted to the opposite end of the plate, and then the tube is again excited, giving rise to a second set of shadows from the foreign body and cylinders. Lines are drawn along the edges of the shadows of the cylinders and continued until they meet. This point is perpendicularly beneath the surface of the tube during the first exposure. By a similar ruling with other shadows, the focus in the tube in the second position is found. By drawing a line from each focal point to each shadow of the foreign body, the point of intersection shows its vertical position. Height above the plate of the foreign body is found by the formula $x = \frac{d}{d+l} h$, where $d =$ displacement of shadow of foreign body; $l =$ displacement of tube; and $h =$ distance of focus from plate. The results have proved accurate within three- and four-hundredths of an inch.

Interpretation of Skiagraphs.—Good results can be obtained only after examining hundreds, and more reliance should be placed upon the examination of the negative, as a number of details may be found in this way that do not appear in the finished proof. The ordinary contour of bones and joints as observed in the dissecting-room is subject to much distortion when their shadows appear upon the sensitized plate. This is due to the distance of the bone from the surface and the position of the focus of the tube. In taking the hip-joints from a central point, there is of necessity distortion of the socket to some extent, the neck and the tuberosities to a greater degree. A skiagraph of the pelvis may be taken in such a way that

various false appearances of deformity in the pelvic bones and femurs may be produced.

Focus-tube Dermatitis.—This is sometimes spoken of as *x*-ray dermatitis, but the former term is the better, as it does not commit us to any view of its origin. By either term is meant an inflammation of the skin, following one or more exposures to a focus tube in action. The damage may be fleeting, nothing more than a slight reddening of the skin with sudden onset and rapid disappearance of the hairs of the affected part. On the other hand, it may be severe, coming on from a few days to a few weeks after the exposure; the epidermis may peel off, or the underlying tissues may slough and leave an obstinate ulcer which takes months to heal. There is nothing specific in the inflammation, which proclaims it as due to the focus tube. It resembles the dermatitis set up by a number of irritants, such as exposure to the hot sun, to a furnace, or to the action of a caustic alkali. Walsh says that the injurious effects of the focus tube are inversely proportional to the distance of the tube from the skin and the length or frequency of exposure. There is a striking analogy between focus-tube dermatitis and that caused by exposure to a hot sun. He believes that it is due to chemical rays, similar to those found in the rays of the sun and the electric arc light. Their detrimental action is determined largely by personal idiosyncrasy.

Visibility of the X-rays.—It has been computed that one person in every 800 is blind to the *x*-rays—that is to say, when looking through the fluoroscope they are unable to observe the bones of the body, the skin, or any other object that is clearly distinguished by the ordinary observer. The sense of light perceived in the normal eye is probably due to fluorescence in the retina.

X-rays and Skin Diseases.—Excellent results have been reached in the treatment of many chronic skin affections by the use of the *x*-rays, especially in lupus. In the treatment of skin diseases it is well to avoid too great strength of the primary current. One and one-half amperes with twelve-volt tension should never be exceeded. A too high tension on the pole screws of the secondary coil of the transformer should be avoided, as well as too long and too frequent application.

Roentgen Rays in Diseases of the Chest.—In apical tuberculosis in the early stages there appears upon the screen some stippling, or a slight mistiness. If the disease has advanced so far that there are portions of the lung that contain no air, a dark shadow is produced. If nodules of caseation are present, they appear as deeper shadows

upon a dark background. Cavities appear as zones of relative transparency surrounded by areas of variable opacity. Absolute opacity is met with in cases of cavities filled with pus. Effusion at the base is shown by a like shadow hiding the diaphragm. It is claimed that with the *x*-rays we can sometimes make a diagnosis of changes in the lungs before other clinical methods of investigation are possible. In other cases it defines the extent or reveals lesions insufficiently exposed to auscultation or percussion. Kelsch examined 124 individuals in whom pulmonary tuberculosis by ordinary diagnostic methods was carefully excluded. In seventy-five of the cases the radiographic examination of the lungs was normal, while in fifty-one there was lessened transparency of the apices, enlargement of the bronchial glands, more or less marked opacity of the pleura, and diminished movements of the diaphragm. He considered these findings as strongly suggestive of tuberculosis.

THE NORMAL TYPE OF SUCCESSFUL VACCINATION.

Prior to 1895 ivory points charged with bovine lymph had for some years practically superseded the practice of arm-to-arm vaccination. The results secured by this method were unsatisfactory, and it was believed that a better method of gathering and storing lymph could be devised. In 1895 the Chicago Health Department submitted seventy-five of the vaccine points then in common use to Dr. Gustav Futterer. Of these, fifty-five, or more than two-thirds, were found to be infected with staphylococci and ten with the streptococci of erysipelas and phlegmonous inflammation. These studies were subsequently repeated upon a large scale by the Health Department, abundantly confirming the observations of Futterer.

These results were so striking that the Department began a systematic study of the methods of storing lymph in vogue in England, and found that the pathogenic organisms commonly present in vaccine lymph were destroyed by glycerin in from fifty to sixty days. At the end of this time the lymph had lost none of its vaccinal power. If, however, the action of glycerin on lymph was continued for some weeks longer, the latter gradually weakened, and after a time the lymph became inert. This led the Department to employ a glycerinated lymph which had been ripened for sixty days and then was used for the next forty days.

After nearly two years' personal use and supervision of the use of more than 200,000 tubes, the veteran vaccinator of the Health Department, Dr. E. Garrott, wrote: "I have noted in using this

vaccine a diminution of the usual inflammatory areola surrounding the vesicle, less constitutional disturbance, freedom from suppurating sores, inflamed glands, and lymph vessels."

The question may be asked why the organism of cowpox is not destroyed by the glycerin. An explanation is offered by Dr. F. W. Riley (Department of Health, Chicago: *Monthly Bulletin*, January, 1901), in which he suggests that the germ of vaccination is probably a spore, and that the glycerin first attacks pathogenic bacilli, and only its prolonged action will result in the destruction of spores.[1] Hence there is a period in the exposure of the lymph to glycerin at the end of which the pathogenic germs are destroyed, but the vaccinal power is retained. The latter disappears at the end of a certain time.

The period of vesiculation is lengthened when pure lymph is employed, but typical vaccination with a lymph devoid of all pathogenic germs is followed by little redness. The sore arm and pustulation, with the sharp local and constitutional reaction, is no sign of a successful vaccination, but rather of an infected lymph.

The report of the *Lancet* Commission (*The Lancet*, April 28, 1900) says that the vesiculation and pustulation may lead those who are not on the lookout for this condition to assume that they have had a successful insertion. Vesicles and pustules may follow the scratching of the skin and the rubbing in of a supposed vaccine lymph, which have a superficial resemblance to the vaccine vesicle, and may deceive the unwary. The vaccine is said to have taken because the arm was sore; in reality the reaction is due to pathogenic germs which afford no immunity to smallpox.

Attention has been called to these facts again by the recent epidemic of smallpox throughout the country which led to an enormous number of vaccinations and such a demand upon the producers of vaccine lymph that much of it was marketed before being properly aged. In consequence, in the school vaccination in the city of Chicago, there was such an epidemic of sore arms that it was for a time suspended until a properly ripened lymph could be secured.

It is most important that the profession as well as the laity should understand that the severity of local reaction in vaccination adds nothing to its protective power against smallpox. Deep scars, inflammation of the skin, induration of the subcutaneous cellular tissue, and constitutional disturbances are the results not of vacci-

[1] The most recent views upon the nature of the vaccine organism are that it is not a bacterium but a protozoon.

nation, but of septic poisoning. Even a slight zone of inflamed skin surrounding the vesicle is not necessary to a perfect vaccination.

If the profession and the laity could be once convinced that the marked local and constitutional reaction which has been regarded as an evidence of successful vaccination is due to a septic infection, this would lead to better treatment in cases in which such an accident occurs. While it is true that pathogenic organisms are usually introduced at the time of vaccination, it is also a possibility that they may be introduced later. A large number of severe local reactions occurring with a given specimen of lymph would almost certainly point to its being improperly prepared. An occasional case may occur in which infection by the pus-forming organism takes place some time after the introduction of the virus. If the view prevails that such an accidental infection is not a necessary part of the vaccination process, it will lead to more active treatment of the ulcer by the physician. Inflamed and suppurating ulcers after vaccination should at once be treated by ordinary surgical methods: the ulcer curetted and antiseptic dressings applied, and the usual means taken to combat a local infection from whatever cause. This antiseptic treatment does not in any way interfere with the immunity conferred by the vaccination.

Erroneous conceptions prevail as to the period of immunity conferred by vaccination. It is probably shorter than has been generally supposed. It is true that it is rare for a person to take smallpox who has been revaccinated, and if he does so, it is usually in a very mild form. Those cases in which smallpox has followed soon after a vaccination in which there has been a severe reaction are probably cases of spurious vaccination which we have described. We have at the present time a much more correct idea of immunity. One or two inoculations with a proved efficient lymph, followed by no reaction, is certainly stronger evidence of immunity than in a case which is followed by vesiculation. The most certain immunity is conferred by a vaccination which is followed by a typical reaction, this to be repeated with a lymph of known efficiency until there is no further evidence of the development of the vaccine disease. There are great variations in different individuals as to the immunity conferred by a single vaccination. In the majority it is probably rare that a typical reaction is obtained after two successful vaccinations, but there are other persons in whom this immunity lasts for a comparatively short time, and in whom successful vaccination may be had at intervals of two or three years during their lives.

The following deductions are justified by our present knowledge of vaccination: (1) Use a well ripened glycerinated lymph, not less than fifty nor more than ninety days old. (2) Prepare the arm carefully, not with antiseptics, but by a thorough cleansing with soap and water. (3) Be sure the instrument used for scarification is aseptic. Avoid hemorrhage in the scarified area, and be sure that the virus is thoroughly rubbed *into* and not merely *on* the surface. (4) Marked redness, induration of the cellular tissue, and severe local disturbance should be promptly treated, according to ordinary surgical principles. (5) Revaccination is quite as important as primary vaccination. (6) Extensive, unsightly scars are no certain evidence of a successful vaccination, but are often due to a mixed infection. (7) Successful vaccination may be had in the absence of pain, redness, and swelling. (8) A "sore arm" may be due to the ordinary pus-forming bacteria, the inoculation conferring no immunity to smallpox.

EDITORIAL COMMENT.

THE PREVENTION OF INSANITY.

Current medical literature contains exhaustive discussions of the marriage of the unfit and of its influence on the production of mental diseases. Some States have actually placed upon their statute books laws regulating marriage, and in others tentative efforts have been made to pass such regulations. Laws regulating marriage will be difficult to enforce, and unless very limited in their scope would so conflict with individual liberty as to be unconstitutional. As in most sociological questions, education and an enlightened public sentiment is more to be relied upon than statutory limitations; the latter, backed as they have been by a large number in our profession, illustrate a tendency which we have to aim at the impracticable and the impossible, to the neglect of less theoretically perfect, but in the end far more efficient, means. We burden ourselves with lengthy discussions of the method of limiting venereal disease, while neglecting the very valuable means of restricting the spread of syphilis which circumcision affords. There are lengthy discussions on the destruction of the tubercle bacilli and the quarantining of tuberculous patients, to the neglect of simple hygienic management of cases of tuberculosis.

In the care of the insane but little change in methods is apparent in the last forty years. Some two decades ago there was a revolt against what was known as the Kirkbride method of constructing hospitals for the insane. This consisted of a central building, with two flanking wings for wards, and a vertebrated body extending backward, composed of the domestic buildings. So far did this plan of construction extend as to details that actually the size of rooms, length of wards, and details almost to the point of dictating what number of boards and nails should be used in the floor, were given. The departure from this was along the line of detached buildings, called wards or cottages, which admitted of some segregation and a better classification. With this change the effort at improvement seemed to have exhausted itself, and it appeared as though the last word had been said in reference to the care of the insane.

In our large hospitals for the insane there is a vast accumulation of chronic cases. The most of these patients are industrious, and from year to year there is little change in their mental and phys-

ical condition. Under the quiet routine and discipline of the hospital they lead uneventful lives, but they are so far incapacitated by mental instability or a partial dementia that they are unable to care for themselves outside of an institution. Many of these patients, had they friends, could easily live outside the asylum without special supervision; a considerable proportion are actually kept in detention simply because they have no one to care for them. This condition has been recognized in some of our States by what is known as the institution of large asylums for the chronic insane. Arguments have been advanced against such a division, stating that no one can say when a patient has passed the curable stage, and pointing to the fact that in these institutions for the chronic insane a small percentage of recoveries is reported each year.

Such argument has some validity providing the establishment of asylums for the chronic insane is based upon economy in their care and lessened dietary and more limited medical attendance, but it is no argument against the view that the different classes of the insane need institutions organized upon different lines. To any one who has practical experience among the insane there is scarcely a question but what there is a considerable proportion that are now cared for in our closed asylums that would be greatly improved in their surroundings and their chances of recovery enhanced if they were placed on a large tract of land upon the colony system. This would admit of a freer and more domestic life with varied industries, and a large colony of properly selected cases could be made nearly self-sustaining. This does not imply that they are to be less well cared for, because the probable effect of such an arrangement would lessen their cost of maintenance. On the contrary, their chances of recovery would be enhanced.

Now that nearly all of our States are definitely committed to the State care of the insane, it would be wise if some careful study were devoted to the subject and a definite plan formulated for the care of the increasing insane population. It is by no means certain that the multiplication of State institutions upon present lines is the best method. Such a plan fails to recognize that there is a wide difference between different groups of the insane, and it is well within the experience of those who have the practical management of institutions that the more perfect the classification and varied the surroundings the more can individual idiosyncrasies in the patients be met. The more the classification is improved, the better the order and discipline of the institution.

The same principle should be applied in constructing institutions

for the care of the entire mass of the insane in a State, recognizing that there are different types of mental disease, some of which do well under certain surroundings which are not adapted to other cases. Certainly the colonizing of the industrious and quiet insane upon a large tract of land is in the direction of economy, and would do much not only for the happiness of these unfortunates, who practically must spend their lives in confinement, but would be directly influential in favoring a restoration to health of those in whom improvement is possible.

Unfortunately, in the profession, there is as yet a too limited practical knowledge of insanity. Even in our leading colleges there is very little opportunity for clinical instruction in mental diseases, it being limited to an occasional case in its incipiency that drifts into the general clinics. It is difficult to see how this is to be obviated until we have established in our medical centers psychopathic hospitals under control of a regular staff, where clinics are given daily. Such opportunity for clinical teaching is afforded in most of the European centers of medical learning, but practically none are to be found in this country. Some difficulties will have to be met, as such institutions will be necessarily under political control, and their usefulness as a means of instruction will be thereby curtailed. The adequate instruction in mental diseases will prove of great importance in the prophylaxis of insanity. It, combined with a better provision for the chronic insane, is the pressing need of the hour. They are practical and within reach, and perhaps for that very reason will not commend themselves to ideal reformers.

CONTACT INFECTION IN INTERNAL MEDICINE.

The earliest writers in medicine conceived the idea that the infectious diseases were spread by gaseous emanations from the patient. In the middle ages this view had become so fixed that physicians commonly attended upon the infectious disorders with their faces covered with masks and their bodies encased in leather, trying to prevent in every possible way inhaling the contaminated atmosphere. To some extent these views still linger in the profession, notwithstanding our more exact knowledge. Dr. Oliver Wendell Holmes, while contending stoutly for the contagiousness of puerperal fever, believed that it was due to a subtle, intangible effluvia that escaped from the patients. The difference between his view and that of Semmelweis was that the latter recognized a distinct and tangible something conveyed by soiled clothing or other means

directly from infected persons or bodies to the living patient. Semmelweis had no idea what this substance was, but spoke of it as putrid or decomposing matter. The early work of Tyndall, in combating Bastian's theories of spontaneous generation, taught that fermentation and putrefaction were wholly dependent upon microorganisms, and that these had a fairly definite distribution; that they might be disseminated as particles of dust through the air, but that when the air was allowed to rest, it soon purified itself and then it was sterile. The early work of Lister in adapting these views to wound infection shows that he believed that the atmosphere was the chief means of contamination, and for this reason he used a carbolized spray, which for several years was considered the *ne plus ultra* of antiseptic surgery. A wider experience taught surgeons that the hands of the surgeon infected instruments, and soiled dressings were the real source of infection, and that only under exceptional circumstances did the atmosphere convey to the wound a sufficient number of germs to cause a systemic infection. In this article we have termed this "contact" in contradistinction to aerial dissemination. More than a decade has passed since these views have become the foundation stone of modern surgical technique.

In internal medicine the old theory of the aerial dissemination of germs has maintained its position down to the present. It is still reflected in our quarantine and isolation regulations of the public health service. It is probable that this view of the transmission of the general infections will ultimately yield, the same as it has done in surgery. Malaria, which was believed to be *par excellence* an air-borne disease, has now been conclusively shown to have its sole means of dissemination dependent upon the mosquito. At the last Pan-American Medical Congress very strong evidence was presented in support of the view that yellow fever is carried by mosquitoes. Cholera and typhoid fever have long since been demonstrated to be due to an infection by the stomach, either by food or water. In cholera an extensive epidemic without contamination of the water-supply is impossible.

Tuberculosis, which was regarded as the chief infection spread by the atmosphere, has lately had this view somewhat shaken. The early experiments upon which it was based consisted in having animals inhale a nebulized solution in which the tubercle bacilli had been suspended. This, of course, was followed by tuberculosis in animals which were susceptible to the disease, though it was recognized that this was not an easy method of infecting animals.

It was so easy to accept the view that tuberculosis was spread by the dried sputum of tuberculosis patients which had become disseminated through the atmosphere and in this way inhaled. Late experiments show that light and desiccation are very destructive of the tuberculous organism. Klebs has recently shown how particles of moisture will carry the tubercle bacilli to a distance of several feet in the ordinary coughing attacks of a phthisical patient. He easily infected plates held at varying distances in front of the face of a coughing patient. One can easily understand how an infection could take place through the air by such a method as this, but one would hardly speak of it as being air-borne. A careful study of the manner in which the infection takes place in the lungs has lent some weight to the view that even in cases of pulmonary tuberculosis the infection is by the way of the lymphatics and not through the air. That this avenue of infection is common is shown by the fact that nearly one-half of all cases of tuberculosis occur in other tissues than the lungs.

It will be seen that every step so far made in the study of these infectious diseases leads us to the same conclusion that the surgeons have reached, namely, that a contact infection, meaning by this a transference of an appreciable number of germs directly from one patient to another, is the chief means by which they are disseminated. The obvious deduction from this is that one climate is not more deadly than another; that temperature, moisture, and the condition of the atmosphere have little to do with the development of the infectious diseases, excepting in so far as they favor the development of germs and the parasites which convey them.

DANGERS OF PRECOCITY.

In man growth after the third year is, though an absolute necessity, an adaptation to environment. As Havelock Ellis remarks (Man and Woman), it is to some extent growth in degeneration and senility. It is not carried to so low a degree as in the apes, and among the higher human races the progress toward senility is less marked than among the lower human races. The child of many African races is scarcely, if at all, less intelligent than the European child, but while the African as he grows up becomes stupid and obtuse and his whole social life falls into a state of hidebound routine, the European retains much of his childlike vivacity. Although precocity is hence considered by biologists as an expression of premature senility, still many fond parents take a different view.

Precocity, as Lombroso (Men of Genius) has said, is generally an expression of defect. Lombroso, however, does not demarcate the precocity due to environment, which may be normal and often is really imitative, from precocity which is the expression of premature senility. Lombroso remarks: "Dante composed a sonnet to Beatrice at seven and Tasso at ten. Compte and Pascal were thinkers at thirteen, Fournier at fifteen, Niebuhr at seven, Jonathan Edwards at twelve, Michael Angelo at nineteen. Gassendi preached at four, Bossuet at twelve, and Voltaire at thirteen. Pico de Mirandolo in his childhood knew Latin, Greek, Chaldaic, Hebrew, and Arabic. Goethe wrote several languages before the age of ten. Wieland at seven knew Latin, meditated an epic at thirteen, and published a poem at sixteen. Lopez de Vega wrote his poems at twelve. Calderon published his 'Chariot of Heaven' at thirteen. Kotzebue attempted comedies at seven, and wrote his first tragedy at eighteen. Victor Hugo wrote 'Irtameus' at fifteen, and published, before the age of twenty, 'Hans of Iceland,' 'Bug-Jargal,' and his first volume of 'Odes and Ballads.' Lamennais wrote the 'Words of a Believer' at sixteen. Pope wrote an 'Ode on Solitude' at twelve, and at sixteen his 'Pastorals.' Byron made poetry at twelve, and published his 'Hours of Idleness' at eighteen. Moore translated 'Anacreon' at sixteen. Meyerbeer was an excellent pianist at five. Claude Joseph Vernet drew in crayons at four, and was celebrated as a painter at twenty. Wren invented an astronomical instrument and dedicated it in Latin to his father at four. At thirteen Ascoli published a work in Wallachian and Trioulian dialects. Metastasius improvised at ten. E. Q. Visconti was a marvel of intelligence at sixteen months, and preached at six years. Fénelon preached an excellent sermon at fifteen. G. Wetton could translate Latin, Greek, and Hebrew at five, and at ten knew Chaldaic, Syriac, and Arabic. Mirabeau preached at three and published books at ten. Händel composed a Mass at thirteen, at seventeen composed 'Florinde' and 'Nero,' and at nineteen was a theater director. Raphael was renowned at fourteen. Relief de la Bretonne had read much at four, seduced girls at the age of eleven, and at fourteen composed a poem on his first twelve mistresses. Eichhorn, Mozart, and Eybler gave concerts at six. Beethoven composed three sonatas at thirteen. Weber's opera, 'The Wood-Maiden,' was publicly represented when he was fourteen years old. Cherubini enthused the populace with a mass at thirteen. Bacon conceived his 'Novum Organum' at fifteen; and Charles XII. planned his conquest at eighteen."

Many of these men of genius were undoubtedly degenerates, and the precocity was an expression of degenerate arrest of development at the senile period (four and a half months) of intra-uterine life. In by far the majority of cases cited, however, parental surroundings, not precocity, is the cause of these intellectual feats. Some of them are by no means striking. Byron's poetry at twelve was no better than the calf poetry so many youngsters write, especially when trained by a nurse replete with poetic legends. Moore's "Anacreon" was no better than that of sophomores who have achieved the same at his age and under similar training. Relief de la Bretonne was a victim of premature senility, like most cases of sexual precocity.

There is a great deal of poetry writing and ambitious performances among children. This is shown by the numerous productions handed in by children of from eight to sixteen in response to newspaper prizes for such productions. Since the chief object of education is to create a judicial balance and an intellectual grasp, rather than an accumulation of facts, anything which tends to encourage the last at the expense of the other two is destructive to the child physically and intellectually and ethically. Right here occurs one of the great evils of school overstrain. These evils are intensified by the bad practice of teachers who encourage precocity but treat slowness of comprehension as if it were a crime. To this practice is due no small number of the cases of insanity of puberty in the insane hospitals charged to "overstudy." This danger in precocity is recognized in the popular proverb, "A wit of five is a fool of twenty." The "infant phenomenons" of stage life remain, like the one in "Nicholas Nickleby," infants of second childhood throughout life. The societies that prevent the early appearance of children upon the stage are doing an excellent service. The limitation and suppression of precocity in children is based on a correct appreciation of the orderly sequence of development.

THE VULNERABILITY OF THE APICES IN TUBERCULOSIS OF THE LUNGS.

E. H. Colbeck and Eric Pritchard, in *The Lancet* of June 8, 1901, discuss the question of the vulnerability of the apices of the lungs in tubercular disease. Statistics show that from 60 to 80 per cent of the cases of pulmonary tuberculosis begin in the apices and that the lesion is rather more common upon the right than upon the left side, it being in the proportion of three to two. There is

no agreement between different observers as to the cause of this preference for the apex of the lung. It has been held by some that the lessened movements of the upper part of the chest give rise to a stagnation of the air in the upper part of the lung and consequently tend to favor the development of the infection in this situation. It is by no means certain that the movements of the upper part of the chest are relatively less than they are in the lower part; even if they were the lessened movement does not account for the uniform location of the initial lesion from one to two inches below the summit of the lung. Another theory is that the air cells in the apex are more readily collapsed and become choked with secretion; and still a third is that foreign matter obtains more ready entrance to the lung because of the patency of the bronchial tubes of the apex. A study of the dynamic relations of the air in the upper portions of the lungs disproves both of these explanations.

Woods Hutchinson has studied the subject in reference to its comparative pathology. He argues that the upper portions of the lungs are the most unstable and possess the least vital resistance, and that the right lobe is more unstable than the left. A mechanical explanation of the frequency of apical tuberculosis is found in the fact that the lungs project in the dome-like cavity above the first rib. The covering of this portion of the lung is not firm, but a loose layer of fascia, muscle, and skin, which under the most favorable circumstances offers a comparatively feeble support. It is apparent from this arrangement that the movements of the upper portion of the lung must be inverted—that is, that there is a tendency to be drawn into the thorax during inspiration and to be pushed out during expiration. With increasingly deep inspirations, inflation of the apices beomes notably lessened, as is shown by the rise of pitch in the percussion note obtained in the supraclavicular fossa. If the support afforded by the soft parts is diminished, inspiratory inflation of the apices becomes correspondingly lessened; and if the support still further decreases, there must come a time when the upper portion of the lung will no longer inflate. Attention is called to the so-called phthisical chest, with its forward displacement of the shoulders and the poorly developed muscles which act upon the shoulder girdle. These conditions all favor that inverted movement which tends to a stagnation of the air in the apex. The greater vulnerability of the right apex as compared with that of the left is due to the fact that the right lung rises higher into the neck than the left; consequently the muscular insuf-

ficiency which favors stagnation would act with relatively greater force on the right side.

The practical bearing of these studies is pointed out by the authors and Woods Hutchinson, namely, the importance of developing the muscles of the shoulder girdle by such exercises as tree-climbing, the horizontal ladder, etc. Muscular movements which bring into play the great pectoral muscles should be systematically carried out.

THE PLAGUE MICROBE.

The recent controversy over the presence of the plague in San Francisco brings to mind some of the difficulties in the diagosis of this disease. Its protean clinical manifestations, presenting as it does an abdominal, pulmonary, as well as the ordinary or lymphatic, type, make its recognition exceedingly difficult. We had supposed that the bacillus of plague had been definitely differentiated, and that when recognized there could be no question of the identification of the infection. A note in *La Presse Médicale* of April 20, 1901, throws a doubt on the certainty of this deduction. When the plague appeared in Hong Kong in 1894, it was studied by Yersin, a delegate of the French government, and by Kitasato, who was sent by the Japanese government. Both bacteriologists announced that they had discovered the specific bacillus of plague, and writers generally, throughout Europe, speak of the Kitasato-Yersin bacillus as the cause of plague.

The bacillus of Yersin is not the same as the one discovered by Kitasato. That of Yersin is an immobile organism which does not coagulate milk nor cause cloudiness in bouillon, and is not colored by the method of Gram. The bacillus of Kitasato coagulates milk and clouds bouillon, and is colored by the method of Gram. The bacillus of Yersin predominates in the lymphatic glands, and that of Kitasato was found in the blood.

Yabe has restudied the question of the infection in bubonic plague in those cases which have occurred recently in Japan. He comes to the conclusion that the Yersin bacillus is the specific infection in the disease, and that the bacillus of Kitasato is a septicemic agent.

According to *La Presse*, Kitasato, while at first contending for the specific character of the bacillus discovered by himself, has by later researches come to the conclusion that the bacillus of Yersin is alone specific. According to Yabe, the bacillus of Kitasato is a variety of the pneumococcus which is to be found in plague cases that are suffering from septicemia.

THE ST. PAUL MEETING OF THE AMERICAN MEDICAL ASSOCIATION.

The St. Paul meeting of the Association has passed into history, and will be long looked upon as one of the most successful and perhaps epoch-making in the progress of the Association.

The adoption of the report on reorganization was inevitable. A very small minority opposed it, but the consensus of opinion, being so overwhelmingly in its favor, meant that it would be promptly carried when it came to a vote. It was claimed on the floor of the convention that the proposed House of Delegates was creating an undemocratic star chamber to arbitrarily govern the Association. This suggestion came from that small coterie of individuals who in the past have largely attended to the business of the convention and whose occupation under the new order of things will be somewhat restricted. The creation of the House of Delegates is, in effect, enlarging the governing body and giving it a thoroughly representative character. It will relieve the general sessions of all business details, and, while they may be less picturesque, they will be more orderly.

The hospitality of the local profession of St. Paul is proverbial, and it was exploited at this meeting with a freedom and prodigality which reflects great credit upon the local profession. A series of entertainments was given which have never been exceeded in the history of the Association. The business arrangements for the meeting, registration, the places of meeting of the sections, were all satisfactory. One objection, which was not serious, was the rather limited supply of hotel accommodations, which again emphasizes what has been stated in these pages, that only the largest cities in the country, or the great resorts, have the necessary equipment for entertaining such a large body.

The place of the next meeting, Saratoga, New York, is an admirable selection, and, together with the election of Dr. Wyeth as president, ought to do much to strengthen the Association in the East.

ABSTRACTS.

MEDICINE.

The Toxic Origin of Neurasthenia and Melancholia.—

M. Allen Starr, in the *Medical Record* of May 11, 1901, says that the toxic variety of neurasthenia and melancholia usually occurs about the age of 45, in those who have lived rather freely, have taken little care of their diet, and have indulged in alcohol and tobacco and neglected exercise. The chief symptoms in this form of neurasthenia are a dull pressure in the head and back of the neck, sensations of fulness in the head with inability to concentrate the attention, irritability of temper, irregularity of the circulation, and general disorders of digestion. The urine is scanty, sometimes of high color, sometimes light, and of low specific gravity; it usually contains large quantities of indican and indoxyl. A chief characteristic of this form of neurasthenia is an alteration of the feelings in different parts of the day. From about midday the patients gradually improve, and reach nearly a normal level at 9 P.M., when the depression begins and reaches its lowest level about 4 A.M., when they commonly waken, experiencing great mental and bodily discomfort. It is this diurnal curve in the depression which leads to a diagnosis of a toxic condition. The maximum of depression occurring after a night's sleep shows that it is not dependent upon exhaustion, but upon some active poison which is liberated.

In the treatment of cases in which the toxemic factor is most prominent, no one remedy is to be relied upon, but material help can be obtained from a regimen and treatment no one particular element of which is necessarily curative, but all of which combine to give relief. The diet is of importance, but the individual peculiarities of the patient must be carefully considered. Meats, as a rule, are well borne. Eggs commonly disagree with these patients, but sometimes they can be taken raw. As a rule, milk is not well borne. Tea commonly disagrees, and alcohol should be avoided in all cases.

In the drug treatment of these cases two classes of remedies should be employed: those which increase the activity of the liver and those which counteract the toxic agent in the intestines. He commonly gives a grain of calomel in divided doses, every ten days,

alternating with a one-quarter grain dose of podophyllin. Carlsbad salt, or a mixture of ten grains of salicylate of sodium, one drachm of phosphate of sodium and one-half drachm of chloride of sodium, is placed in a large tumbler of water and taken early in the morning.

The toxic agent is combated by three different combinations. It is never possible to tell which will be of most service in a particular case. The first is a combination of five grains of sulphocarbolate of sodium with one grain of permanganate of potassium, which is placed in a capsule and coated with shellac so that it will not dissolve in the stomach. These capsules are given after each meal and on going to bed.

A second combination is salol five grains, castor oil ten minims. This is placed in a capsule which is rendered insoluble in the stomach by a coating of shellac.

A third remedy, given in the same manner, consists of benzoate of sodium one grain, sulphocarbolate of zinc one grain, and one grain of beta-naphthol.

These remedies administered steadily for a considerable period improve the intestinal digestion; the first notable symptoms of relief are improved rest at night and a relief from the depression which comes early in the morning.

Gastric Secretion in Pulmonary Tuberculosis.—

L. H. Neuman, in the *Albany Medical Annals* for May, 1901, refers to the frequent association between gastric disturbance and pulmonary disease, and gives the history of twelve cases, in five of which there were no signs of involvement of the lungs when the patients were first seen. In the remaining seven cases the gastric symptoms were uppermost in the patients' minds, but the signs of tubercular involvement of the lungs could be made out. In all of the cases, save one, tubercle bacilli were found in the sputa. In all the cases repeated quantitative examinations of the stomach contents were made, except in one instance, where but a single examination was made.

This communication emphasizes a fact that has long been recognized clinically, that digestive disturbances are among the most common symptoms of pulmonary phthisis. As early as 1855 Jonathan Hutchinson described a form of dyspepsia which often preceded and attended phthisis. In 1867 Thompson, in a paper on indigestion in early phthisis, opened by saying: "Deranged digestion is one of the most common deviations from health that ushers in

tubercular disease." Of the writer's seven cases, with evident tuberculosis at the time they came under observation, one showed hyperchlorhydria. Two cases early in the disease showed normal or nearly normal acidity. One case in which the physical signs of phthisis were slight showed a total absence of hydrochloric acid with the presence of organic acid and marked gastric dilatation. In three cases the acidity was below normal when first examined. In the cases longest under observation, as they progressed the amount of free hydrochloric acid lessened. This was particularly noticeable in one case which showed excessive hydrochloric acid secretion in six examinations, but its total absence toward the end of the disease. This variability in the secretion at different times may explain the diverse results obtained by different observers. Comparative results, to be of value, should cover the case from the beginning to the end.

In some of the advanced cases the stomach contents showed the presence of putrid sputa, which after sedimentation was found to contain tubercle bacilli. The swallowed sputa in phthisis induces gastritis with all its evil effects upon digestion. Phthisical patients should always be warned against its dangers.

A practical point in the treatment of the gastric symptoms is not to give hydrochloric acid, nux vomica, or capsicum because of anorexia. These symptoms do not indicate the absence of hydrochloric acid, but may be associated with an increase in acidity, and if so they can only do harm.

Tobacco as a Cause of Glycosuria.—

Heinrich Stern, in the *Medical Record* of April 27, 1901, says that the habitual or excessive use of tobacco will not only aggravate an existing glycosuria, but it will, though less frequently, set up this condition. Tobacco influences the output of glucose in cases of glycosuria in three ways: First, by protracting the duration of transitory glycosuria and by imparting to alimentary melituria a certain degree of chronicity; secondly, by increasing the quantity of dextrose in the twenty-four hours' urine, in the transitory as well as the chronic forms of glycosuria; thirdly, by transforming the moderate degrees of chronic glycosuria into the graver forms.

The clinical histories of four cases are given, in which the direct relation of the use of tobacco to an increase in the amount of sugar excreted is shown. No such causative relation has been shown heretofore in the literature, there being only occasional references to the fact that tobacco exercises a more deleterious effect upon the

diabetic than upon the healthy. The writer says that nicotine is not the causative factor in tobacco glycosuria, as the fumes of the burning tobacco contain little or no nicotine. The substance in tobacco smoke which he regards as of greatest importance is the carbon monoxide due to the imperfect combustion. Some warrant is found for this view in the fact that glycosuria is only found in smokers of cigars, and not in those who use pipes. To the better combustion of tobacco and the failure to form carbon monoxide the writer attributes the freedom of the pipe smoker from deleterious consequences.

Habitual and excessive indulgence in tobacco may induce chronic carbon monoxide intoxication. Nicotinism is commonly regarded as synonymous with tobacco intoxication, but it is only one form of the latter. The CO arising from incomplete combustion of the weed causes a not infrequent form of intoxication, and one to which very little attention has been paid.

The Medullated Fibers of the Cerebral Cortex in Twenty-five Cases of Insanity.—

Edwin Goodall and Peers Maclulich, in an exhaustive article in *Brain*, part 92, 1900, give the results of the study of the medullated fibers in the brains of twenty-five persons dying insane. Heretofore but little attention has been devoted to medullated fibers, but from the results achieved by these writers it is apparent that it is a very important field of pathological research, and one which if it had been more diligently studied would have added much to our knowledge of the pathological anatomy of certain forms of insanity which have not heretofore been found associated with anatomical changes in the brain. In seventeen out of the twenty-five cases there was marked and wide-spread degeneration of the medullated fibers of the cortex. In six of the cases these changes were extreme; they included one case of delusional insanity of six years' duration, two of the maniacal type of dementia paralytica of a duration respectively of two years and of five and a half months, a case of puerperal insanity of five years' duration, one of acute mania terminating in acute delirium in four months, and one of acute mania of a duration of one and three-quarters years.

Of the remaining eight cases there were three in which there were local areas of degeneration; in the other five cases there were moderate changes in the medullated fibers.

In some cases of paralytic dementia there was a marked variation in the degree of degeneration in sections that were cut very

near each other; this was noted in sections less than ten millimeters apart.

Atrophy of the fibers was more extensive in some cases of one and a half months' duration than in those of many years' standing.

The frontal lobes showed the most extensive degeneration in nine out of twenty-three cases. In only one case was this the least affected area.

Two Epidemics of Rabies.—

Ernest Went, in the *Buffalo Medical Journal* for May, 1901, traces an epidemic of rabies which occurred in Buffalo and its neighborhood during the years 1898, 1899, and 1900. The malady was first observed in November, 1898, occurring in a dog which subsequently bit a cow and a horse. These were followed by a number of isolated cases occurring at various intervals until June, 1899. Then a stray dog appeared in Alden, N. Y., and bit a large dog belonging to one of the citizens of that place. The dog later became sick and wandered from home, and subsequently bit three women, two horses, four cows, and an unknown number of dogs. From this time on the epidemic grew in proportions. In all thirty-seven cases were sent to the Pasteur Institute at New York for treatment; there were three verified deaths from hydrophobia, and one fatal case in which the disease was not demonstrated by post-mortem changes.

George W. Coler (*ibidem*) says that about June 1, 1900, there were reports of dogs dying in Rochester of a strange disease. The symptoms were a change in temperament, loss of appetite, paralysis of the hind legs, mouth-drop, convulsions, and death. Portions of the medulla were inoculated into rabbits and caused death from paralytic rabies in two to eight weeks. With these confirmatory results, the health department felt justified in declaring that an epidemic of rabies existed. From November, 1900, to April, 1901, an average of more than a dog a day was reported rabid. A number of persons were bitten; from fifteen to twenty were sent to the Pasteur Institute at New York City, and two of the individuals died of the disease, one of which was verified post mortem.

The Carbohydrates of the Urine in Diabetes Insipidus.—

D. L. Edsall, in the *American Journal of the Medical Sciences* for May, 1901, calls attention to the work of Rosin and v. Alfthan, who have determined that the urine contains carbohydrates that are unfermentable. These are not only found in diabetes, but they are present in health under normal conditions, averaging about 1.6

grammes. In fermentable, diabetic urine, these carbohydrates are always increased, amounting to from nine to twenty grammes. The presence of these substances leads them to the conclusion that diabetes mellitus is no longer to be regarded as a "glucose disease," but rather as a disturbance of carbohydrate metabolism in general.

Rosin and v. Alfthan claim that the unfermentable carbohydrates are increased in the urine in cases in which the glucose has been eliminated by proper diet, and that in cases of diabetes insipidus the amount of unfermentable carbohydrates is also increased. Their observations are not confirmed by Edsall, who has studied a case of polyuria. The patient suffered from excessive thirst, and the daily amount of urine averaged 4500 cubic centimeters. While the urinary carbohydrates were increased, it was not beyond that which would be accounted for by the excessive flushing of the system due to the large quantities of water ingested; the latter alone will increase the total nitrogen output. Edsall's observations lead him to the conclusion that excessive urination eliminates an increased quantity of the unfermentable carbohydrates, and that the presence of the latter in the urine in increased quantity in diabetes insipidus does not establish a relation between this disease and true diabetes.

Disinfection of Wounds with Pure Carbolic Acid.—

Von Bruns, in the *Philadelphia Medical Journal* of May 18, 1901, has tried pure carbolic acid in the treatment of eighty cases of infected wounds, suppurating joints, etc. After excision, or the curetting of an infected wound, the skin is protected against an extension of the action of the carbolic acid by surrounding it with absolute alcohol. The wound is then thoroughly swabbed with a gauze sponge, previously moistened in the pure carbolic acid, the amount depending upon the size of the wound, usually from two to six grains being sufficient. This cauterization is not painful, and it is never necessary to induce anesthesia. It was noticeable that there was very little secretion after the first dressing, which is commonly allowed to remain from two to four days. In a case of resection of the hip-joint the first dressing was allowed to remain four days. These cases show that carbolic acid markedly influences the condition of suppurating wounds, and their progress toward recovery after its employment is without interruption. In none of these cases were toxic symptoms noted. Pure carbolic acid destroys the bacteria on the surface and also those in the superficial layers of the wound, and its bactericidal power is not lessened by the secretions of the body. In addition there follows a superficial sloughing which

brings about a reaction in the deeper tissues, which assists in demarcating the infected areas. There is no question of the value and safety of carbolic acid when applied for one minute, followed by an irrigation with absolute alcohol.

Apoplexy and Hemiplegia.—

H. N. Moyer, in *American Medicine* of May 25, 1901, notes the fact that the term apoplexy is still loosely used even by the best writers. He refers to the prevalent misconception of the relation of cerebral arterial disease to sudden death—meaning by the latter a death which takes place within a few minutes. The latter is almost never due to vascular involvement in the brain, excepting where the cardiac or respiratory centers are involved. Sudden death is almost always due to heart disease. It would be desirable if a diagnosis could always be made between cerebral hemorrhage and thrombosis, but this is not possible. In hemorrhage the treatment should be directed to lower vascular pressure, while in thrombosis exactly the opposite line of procedure should be employed. He condemns the administration of strychnine and ergot; useful as the former is in heart failure, it has no place in the therapeutics of cerebral thrombosis or hemorrhage. Cases of this kind have a fatal termination from respiratory failure, and strychnine increases vascular tension and so precipitates the condition which it is designed to relieve. Ergot is of no value in controlling hemorrhage into the brain, but on the contrary directly favors it, because it increases vascular tension. Ergot is only of use in postpartum hemorrhage, and there it is of value because it contracts a hollow muscular organ and so mechanically occludes the vessels. It has no influence in hemorrhage into the organs in which no such muscular structure exists.

Iodophilia.—

Theodore Dunham, in the *Boston Medical and Surgical Journal* of June 13, 1901, coins this word to describe the iodine reaction of the blood, which deserves more extended study than it has yet received. This reaction is always present in progressive suppurations and progressive anemias. It may occur in a few other diseases, but they may be easily recognized in other ways and are not to be confounded with abscess or anemia.

In making the test but one solution is needed: three parts of potassium iodide is dissolved in 100 parts of water; to this is added one part of iodine. The solution is then thickened to a syrup-like

consistence by the addition of gum arabic. The blood-smear is allowed to dry spontaneously, and the test can be made several weeks after the smear has been obtained. The blood is covered with a drop of the solution, the excess being removed by filter-paper placed at the edge of the cover-glass. The specimen is then examined by an oil-immersion lens. The lymphocytes and the eosinophiles are not stained. In normal blood the polymorphonuclear neutrophiles are either unaffected or their protoplasm is colored pink or light brown. Under pathological conditions the protoplasm of these latter bodies takes a reddish-brown coloration. Some are stained diffusely, and in others the coloration appears to be granular. When one or more such leucocytes are found in a search of a few minutes, the reaction, which the writer calls iodophilia, is present. In acute suppurations, where the process is intense, this reaction is marked. In small, indolent abscesses, the reaction is slight. He has found the reaction in every case where the abscesses are of any size and the process virulent. Iodophilia is present in grave anemias, and hence they must be excluded before the assumption is entertained that it indicates either pneumonia or an acute suppurative process.

An Undescribed Reaction Following Vaccination.—

Heinrich Stern, in *American Medicine* of May 25, 1901, describes ten cases in which gouty and rheumatoid conditions disappeared after vaccination. He classifies the cases as uricacidemia, rheumatism, and neuralgia, but they had one symptom in common, namely, pain. The relation between vaccination and the disappearance of gouty pains in certain cases seems to have been discovered quite accidentally. The first of the cases, a German, 50 years of age, an employee in a brewery, had been addicted to the use of beer and other alcoholics and suffered from repeated gouty attacks. Under an antilithemic dietary and the administration of potassium iodide and colchicum the pains lessened. Later it was found that the colchicum alone would abate the attacks, and colchicin was ordered and continued in small doses. In December, 1900, he was vaccinated, and on the seventh day there was a distinct febrile reaction which lasted for four days. This was followed by a disappearance of the lithemic symptoms.

The remaining nine cases were in a general way a repetition of the foregoing. In two cases an experimental vaccination was made, and in both there was a like improvement in the lithemic conditions. In closing his remarks the writer says that it is not his intention to

recommend vaccination as a specific for all kinds of muscular or other pains, but simply to call attention to a relation which has been repeated with some frequency in his experience.

The Diagnosis of Renal Colic.—

Rudolf Schmidt, in the *Wiener Klinische Wochenschrift* of May 16, 1901, sums up a short article on the differential diagnosis of infarction of the kidneys and stone in the urethra. It is impossible in every case of renal colic to determine whether the trouble is intrarenal or ureteral. The intrarenal causes are due to an increase of pressure in the kidney and sometimes to infarction. Where the cause of the pain is found in the kidney, it is usually confined to the neighborhood of the affected organ. The kidney is usually tender to touch, and the pain is continuous and is commonly accompanied by the sudden appearance of marked albuminuria or a sediment characteristic of nephritis.

In ureteral colic the tenderness extends along the ureters and may be elicited by pressure over these structures. The pain is commonly intermittent.

Intrarenal colic can be caused by (*a*) torsion of the vessels in movable kidney; (*b*) sudden congestion of a vascular tumor; (*c*) chronic nephritis with an acute inflammatory exacerbation; and (*a*) kidney infarction. Tenderness of the kidney is in general more marked in infarction than in chronic nephritis. High arterial tension is rare in kidney infarction. The pain is usually suddenly developed in infarction, and hematuria is frequent in nephritis but is rare in infarction. Intense albuminuria without sediment is frequent in infarction.

Abdominal Pain in Typhoid Fever.—

Thos. McCrae, in the *New York Medical Journal* of May 4, 1901, summarizes a study of a considerable number of cases of pain in the abdomen in the course of typhoid, taken from the service of Dr. Osler. He says that in the text-books little mention is made of abdominal pain, excepting in connection with certain complications or in relation to the usual tenderness in the right iliac fossa. A study of his cases leads him to the conclusion that two-fifths of the patients pass through an attack of typhoid fever without pain or tenderness. Less than one-fifth have tenderness only, and pain is present at some time in about two-fifths of all cases. It occurs during the course of the fever in about one-third of this latter number. Pain due to some condition other than specific bowel lesions is present

in about 14 per cent. Pain occurs with hemorrhage or perforation in about 5 per cent of all cases, and in about 15 per cent of those in which there has been pain during the course of the fever. In perforation pain was always present, usually sudden in onset, severe in character, and paroxysmal. The pain of perforation is closely simulated by that which occurs in some cases of hemorrhage, phlebitis, and others of unknown origin. In about two-fifths of all cases with pain during the course of the fever, no cause could be found.

An Eruption on the Soft Palate in Epidemic Influenza.—

Louis Kolipiński, in the *Medical News* of June 1, 1901, says that the soft palate presents obvious signs of epidemic influenza in all cases of this disease. The appearance in question is seen upon the mucous membrane in the form of small convex projections, pearly white, or transparent. They are small, about the size of a grain of sand, and may be either few in number or quite abundant, scattered over the entire anterior surface of the velum palati. To discover them the throat must be examined in a good light, preferably daylight, but bright artificial illumination will bring them out. They may sometimes be confounded with small particles of mucus, and sometimes they may be obscured by secretions. In such cases, if the velum is carefully cleansed, they are brought into view. He believes that they are inflamed mucous glands, but has had no opportunity of studying their structure. Their presence is devoid of any subjective sensation.

Multiple Subcutaneous Sarcomatous Tumors.—

Jonathan Hutchinson, in the *Clinical Journal* of May 22, 1901, describes the case of a healthy looking man, about 40 years old, presenting a number of large tumors about the chest and abdomen. The history given was that ten years before, after a venereal disorder of uncertain nature, a gland in the groin enlarged and subsequently somewhat receded in size, but was always palpable. Ten years later the glands took on a rapid increase in size, and there was a rapid extension along the lymphatics to other glands. Now one is to be found upon the shoulder and several upon the abdomen, but as yet the cervical glands are not involved. With one exception the skin is freely movable over the glands; the skin over that which is adherent has become congested. It is evident that the disease has not yet entered the blood-current, but is spread by the lymphatics. At the present time the patient's nutrition is not much involved, but it will soon become so, as these glands grow at the expense of the general

nutrition of the body, absorbing those substances in their own growth that should go for the nourishment of the tissues. The most useful treatment in these cases is arsenic in the form of Fowler's solution, from six to eight drops each day until the physiologic effects are produced.

Streptococcus Associated with Membranous Angina Followed by Paralysis of the Soft Palate.—

Moses Keschner, in the *Medical Record* for June, 1901, refers to the fact that in a pseudomembranous angina that is followed by paralysis it is commonly believed that the Klebs-Loeffler bacillus is present. He describes a case in which the throat was covered with a thick, dirty, whitish-gray membrane. A smear from this showed short-chained streptococci and a few staphylococci, but no Klebs-Loeffler bacilli. A culture on blood serum, examined after twelve hours, showed a pure growth of the streptococcus. On the fourth day of the disease the membrane began to disintegrate, and on the seventh had entirely disappeared. On the eighth there was difficulty in swallowing, and liquids were regurgitated through the nose. Ten days later there was some improvement in the paralysis. A review is given of the reported cases, the paralysis following streptococcus infection of the throat. They are but few in number.

Gastrointestinal Symptoms with Kidney Stone.—

Maximillian Sternberg, in the *Wiener Klinische Wochenschrift* of April 19, 1901, says that a disturbance of the stomach is regularly associated with renal calculi. A disappearance of the pain is accompanied by a lessening of the intestinal disturbance, hence opium is indicated in these cases. Extensive involvement of the intestines is almost always accompanied by increased arterial pressure. There are cases of renal calculi in which the gastrointestinal symptoms are so pronounced that the clinical picture of kidney stone is entirely obscured; these may be spoken of as a gastrointestinal form of renal calculi. The diagnosis in these cases can only be made by the tenderness along the ureters and at the McBurney point. The important diagnostic distinction is where partial inversion of the body gives some relief to the pain; if this is noted it is strong evidence that the colic is due to the passage of a renal stone.

Gonorrheal Iritis.—

John Griffith, before the Harveian Society (*Lancet*, March 16, 1901), announced some rather startling views on the relation of gonorrhea to iritis, saying that this infection is a common cause

of the disease and much more frequent than syphilis. Not only is it a complication but it is a sequel of gonorrhea, and as a cause it is overlooked in cases marked by a recurrence, they being attributed to rheumatism. In his experience, recurrent iritis is usually due to gonorrhea, both this and the rheumatic trouble being subsequent to the attacks of urethritis. Syphilitic iritis is said not to recur, and when the disease shows a disposition to return, gonorrhea should be suspected. Of course, it is possible for a gonorrheal iritis to appear in a patient who has had syphilis. In conclusion, he expressed the view that gonorrhea is to be ranked as a constitutional disease, and that the iritis which accompanies it often appears at a remote period from the date of inoculation.

Heat as a Diagnostic Measure in Appendicitis.—

The *Therapeutic Gazette* of May 15, 1901, calls attention editorially to a differential diagnosis which can sometimes be made by the application of heat. Lewin, of Berlin, claims that by the local application of heat we are able to say whether an inflammatory process has gone on to suppuration. In appendicitis, he asserts that if pus has not formed the application of heat will be a comfort to the patient. If pus is present the pain will increase in severity. In ten cases of appendicitis, in which heat was applied for two hours by hot compresses, eight experienced marked relief, but in two there was an increase in pain. The two in which the pain was aggravated by the hot applications died from an extension of the suppuration. Spohr, of Frankfort, has had a similar experience with hot applications in fifteen cases of appendicitis.

SURGERY.

A New Operative Method for Exposing the Seminal Vesicles and Prostate.—

Eugene Fuller, in the *Journal of the American Medical Association* of May 4, 1901, describes a new method of exposing the prostate. The position assumed by the patient puts the pelvic structures upon the stretch and admits of a very accurate dissection. The position,

FIG. 1.

with a special table devised for its application, is shown in Fig. 1. The sides of the table are notched so as to receive the thighs of the patient, which is an additional means for steadying the body. The patient is placed face downward and the thighs strongly flexed upon the body; at the same time the pelvis is elevated.

In the exposure of the base of the bladder, an antiseptic lubricated cotton tampon is pushed into the previously cleansed rectum well up into the sigmoid. The external incision consists of a short transverse cut in the perineum, from which two lateral arms extend upward and outward; the wedge-shaped flap which is formed includes the termination of the rectum (Fig. 2).

The next step is to incise deeply, going through the fatty tissue of the ischiorectal space, and at the upper end of the incisions dividing a few of the lower fibers of the gluteus maximus muscle. The transverse cut is then deepened, the anterior layer of the deep

fascia being cut through. Great care is taken in cutting down transversely to avoid wounding the anus or the sphincter muscle. The forefinger of the left hand is then inserted into the rectum with the volar surface against the anterior rectal wall. Traction at the same time is made upon the loosened end of the rectum, as shown in Fig. 3. The space between the rectum and the urethra is very narrow, and hence the finger in the rectum should always act as a

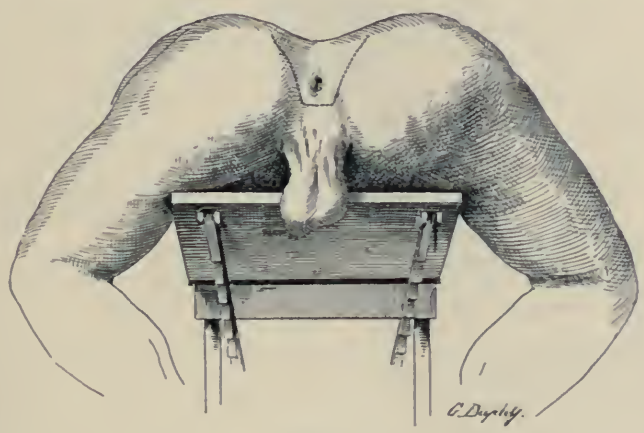


FIG. 2.

guide to the dissection; by keeping close to the urethra the rectum is avoided. In case the lateral incisions have not been deep enough to separate the levator ani muscle, this can be done and the rectal flap readily freed. From this on the dissection can be accomplished by the finger until it passes through the cut in the visceral layer in the pelvic fascia and enters the space between the prostate and the rectal wall. It is comparatively easy to strip the loose rectal connections from the seminal vesicles in the posterior bladder wall, leaving those parts exposed to direct surgical attack.

The operation for which the incision was undertaken being completed, the rectum is replaced in its original position and the sutures applied, leaving a space in the transverse cut for gauze packing.

The report is a preliminary one, as too short a time has elapsed since its adoption by the author to admit of drawing conclusions as to its advantages or disadvantages. It exposes the prostate satisfactorily and makes its removal comparatively easy. He has used the method in five cases, and all the patients have recovered. In three of them the incision was used to expose chronically diseased seminal vesicles, which were incised and drained. In these cases

free longitudinal incisions into the diseased sacs were made, and where the anterior of the organ was found to be granular it was curetted. In all cases the cavities of the sacs were packed with gauze. In cases where the vesicles were surrounded by inflamma-

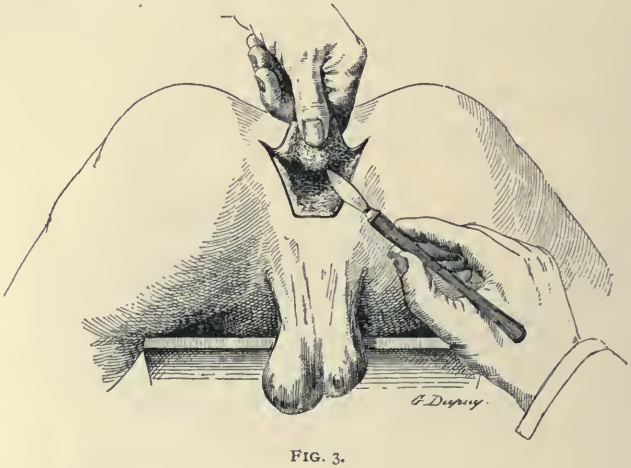


FIG. 3.

tory adhesions, these were broken down, leaving the organs free. In one of his cases he removed a seminal vesicle, and in another a neoplasm was taken from the interior of a vessel, leaving the sac intact. The growth was an adenoma, but with a strong suggestion of carcinoma.

Abscess of the Sphenoidal Sinus Occurring with Acute Mastoiditis.—

Oscar Dodd, in the *Laryngoscope* for May, 1901, describes the case of a man 29 years of age, who presented himself with a somewhat uncertain history. His general health had been good, excepting for a catarrhal trouble. Ten days before coming under observation he had severe pain in the right ear lasting for two days, which ceased after a discharge of pus from the ear. Following this there was a slight discharge and a little pain. Upon examination the nose was found to contain a mucopurulent secretion. The turbinates were slightly swollen, and the pus seemed to come from the accessory cavities. The right ear was discharging pus through a small opening in the tympanum. There was no swelling over the mastoid and no tenderness or pain on pressure. The pain then became most severe over the right eye. His temperature ranged from 101.8° to 103°. The following day the mastoid was opened and the cells were all found healthy, until the tip of the bone was reached, where

a pus cavity about a quarter of an inch in diameter was found. The antrum was not opened. The following day the pain had lessened, but it still persisted above the right eye, and there was tenderness over the right supraorbital nerve. The temperature was 99° to 99.3°. For the next five days he was comparatively comfortable, complaining of pain occasionally in the right frontal region. In examining the eyes no trouble with the optic nerve was found, nor with the optic muscles. A little later vomiting came on, and there was a deviation of the right eye and an inequality of the pupils. The temperature increased and delirium came on. The wound in the mastoid was again opened and the antrum entered. At this time the optic nerves were congested and there was engorgement of the veins, but nothing that would suggest a choked disk. The patient improved after three days, only to be followed by an increase in temperature, delirium, and death.

The post-mortem showed no trouble in the region of the temporal bone, but a localized purulent meningitis over the body of the sphenoid. The walls of this bone were easily broken down, and its cavities were found filled with pus. An opening between the sphenoid cells and the brain could not be demonstrated, but the bone was fragile.

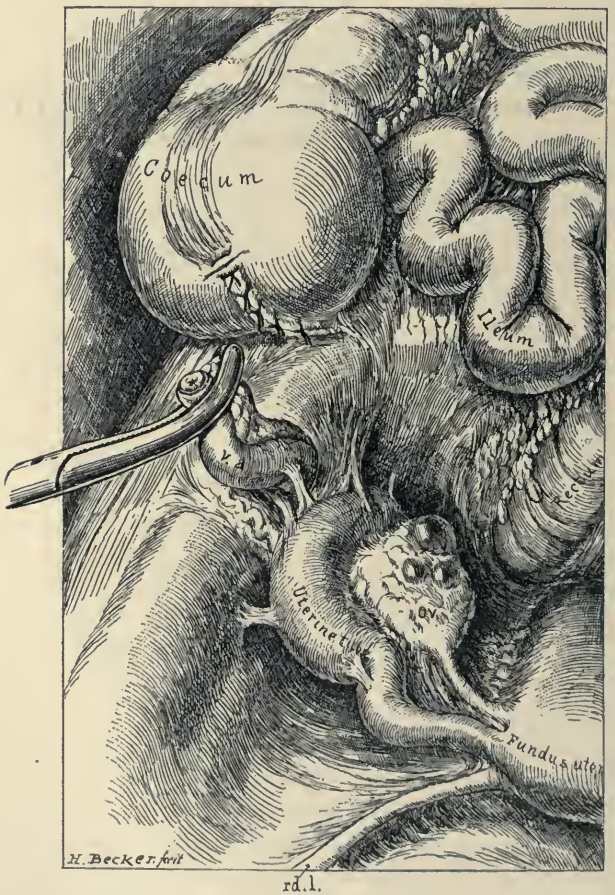
In the history of the patient there was an account of recurrent frontal headaches, similar to those complained of during his last illness. It is probable that the sphenoidal abscess had existed for a long time, and from this the infection had extended to the middle ear and to the mastoid cells. The only symptom in this case that would point to sphenoidal trouble was the supraorbital pain. No eye symptoms were present until meningitis occurred. In the cases reported by Schaeffer, dizziness, supraorbital neuralgia, and stiff neck, with a sense of pressure in the head or occiput, were observed in the chronic cases. Pain was intermittent and sometimes accompanied by nausea and vomiting. He never found eye trouble. In a case reported by Hardie the eye symptoms were pronounced and first directed attention to the origin of the trouble. A large number of these cases are not diagnosed and are treated for simple catarrhal trouble. A want of drainage leads to severe symptoms, and death results from meningitis.

Treatment of the Appendix in Aggravated Cases of Appendicitis.—

H. A. Kelly, in *American Medicine* of April 20, 1901, says that the treatment of the appendix in cases where there are no adhesions or other complications is not a difficult matter. When it ruptures

into an abscess, or dense adhesions have formed around it, or there exists a more or less general peritonitis, the indications must be carefully met in an individual case.

When the free end of the appendix is bound down by strong adhesions, it is often better to expose and divide its attachment to the cæcum. The opening in the bowel is then stitched, after which



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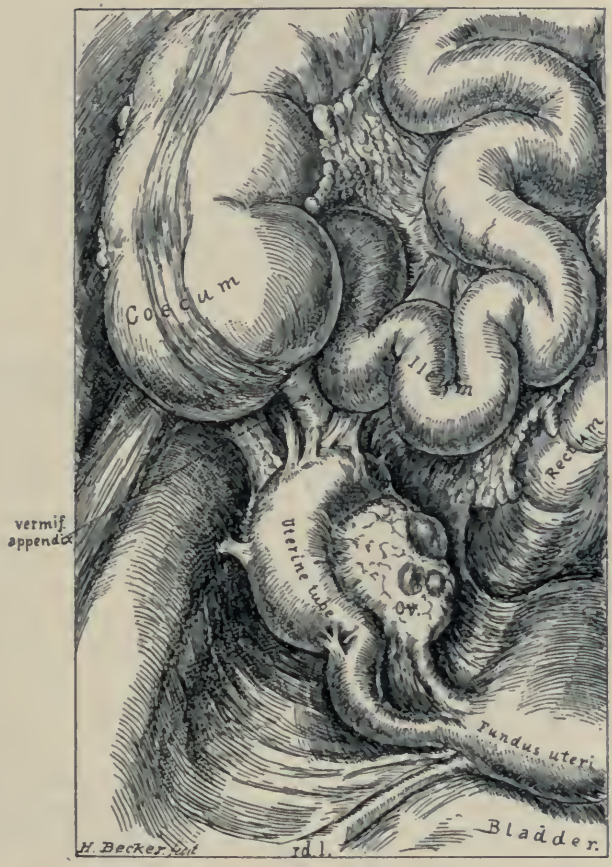
the appendix is quite easily separated from its bed, the procedure being more easily accomplished than when it is bound down at both ends. This method is especially applicable when the vermiform appendix is attached to a pyosalpinx. When the appendix is embedded in strong adhesions and there is difficulty in separating these, due to the possibility of hemorrhage and the danger of tearing



An ovarian cyst with omental adhesions above on the left and an adherent vermiform appendix below.

the tissues, the appendix can sometimes be stripped out of its case by cutting through the peritoneal and the external muscular coats as far as they can be seen, and then by pulling on the freed end of the mucous membrane. This procedure removes the circular muscular coat and the mucous membrane. During the last two years he has often had recourse to this method of dealing with the appendix, and recently Dr. Mixter, of Boston, gave him a specimen which shows how easily an even unusually long appendix may be stripped from its coverings.

Dr. Mixter's case.

When the end of the appendix enters the abscess cavity, surrounded by adherent intestines which cannot be separated with safety, the appendix may be dealt with by grasping it close to the abscess with a pair of forceps on either side. The appendix is then split open, using as a guide a grooved director that has been passed into its lumen. In a recent case the reporter was able to enter an abscess cavity by this method without damaging the colon.

Chronic Seminal Vesiculitis.—

Arthur L. Clute and Richard F. O'Neil, in the *Boston Medical and Surgical Journal* of June 13, 1901, publish their individual observations upon this disease, which is much neglected, notwithstanding Fuller's excellent study. Their general work in a large dispensary leads them to think that this condition is more common than is generally supposed. That they have seen this complication with unusual frequency may be due to the fact that they have an unusually large number of chronic and intractable cases of gonorrhea coming to their clinic. No systematic study was made of all the cases in reference to involvement of the vesicles, but only those which presented symptoms that pointed with some probability to involvement of the posterior urethra and prostate.

The symptoms of vesiculitis are divided into those that are direct and reflex, though combinations of the two are frequent. In the long-standing cases reflex symptoms are most characteristic. Among the direct symptoms are vague feelings of discomfort in the rectum and perineum, pain on defecation, persistence of discharge of shreds in patients in whom stricture can be ruled out; particularly

suggestive is the presence of small, comma-shaped shreds from the prostatic urethra. Another common symptom is the starting up, without any indiscretion on the part of the patient, of a urethral discharge which had nearly or quite stopped. The reflex symptoms commonly include those which are spoken of as sexual neurasthenia, suprapubic pain, pain in the back or in the head, and tender points along the urethra. Pain along the spermatic cord may occur, and when the disease involves but one vesicle the pain is upon the corresponding side. Irregularities in the sexual functions combined with these neurasthenic symptoms are very frequently associated with vesiculitis.

In investigating the condition of the vesicles the rectum should be emptied and the bladder moderately distended. The patient should stand with the feet apart, bent well forward over a chair, the legs being straight at the knee. The digital examination is helped by the examiner making suprapubic pressure with the hand or with the closed fist, forcing the pelvic viscera downward and rendering the vesicles more accessible. Sometimes the vesicles can be felt enlarged and tender; more frequently only a diffused enlargement of the prostate, associated with inflammatory exudate along the base of the bladder. Most commonly there is an involvement of the vesicle unilaterally. The prostate is commonly tender, sometimes greatly enlarged, and occasionally has the conventional heart-shape with the base below. This is probably due to the exudate over the ducts, which fuses the structures together and makes it impossible to sharply define the upper border. The upper boundary of the prostate may have a boggy feel, which pits upon pressure. One characteristic symptom is the material obtained by stripping the rectum. The urine voided after massage of the base of the bladder is commonly turbid, containing cheese-like masses made up of epithelial and pus cells.

In the treatment of this condition the best results have been obtained from massage, which in every case has included the prostate, as it is impossible to massage the vesicles alone. In carrying out the procedure the patient is placed in the same position as during the examination. When the vesicles are very tender the time of massage is short; the treatment should be repeated at intervals of from five days to a week. In cases where the bladder cannot be evacuated shortly after the massage it should be washed out, otherwise mild cystitis may be set up. Commonly, the massage is followed by improvement objectively as well as subjectively; the hard and indurated prostates become softer, and those that are large and

sodden shrink to more normal proportions. The treatment, as a rule, gives better results in young patients, and most cases of vesiculitis can be greatly benefited by careful treatment. In the majority the subjective symptoms can be made to disappear for a considerable time. In older patients the occasional use of massage will give them great comfort. The writers believe that a certain number of cases of impotence and sterility may be due to a vesiculitis, and they advise the prostatic examination of all patients with urethral disease of recent or long standing which is not progressing favorably, particularly in those cases showing the so-called neurasthenic symptoms.

The Surgical Treatment of Ascites, Due to Cirrhosis of the Liver.—

F. R. Packard and R. G. Le Conte, in the *American Journal of the Medical Sciences* for March, 1901, say that the surgical treatment of ascites has not been tried with sufficient frequency to permit of an accurate estimate of its value. In the two cases which they report the results were on the whole unfavorable, but they have been recorded that a more just estimate can be formed of the advisability of the procedure. From a medical point of view there was very little that could be done for these cases, as they belonged to cirrhosis of the liver with frequently recurring ascites in which only repeated tappings give relief. In both cases at the time of operation it was evident that there had been no attempt on the part of nature to obviate the effects of portal obstruction by the formation of adhesions. In one of the cases no post-mortem examination was made, but in the other which was examined adhesions were found, and it was shown that the operation had been quite successful in establishing a collateral circulation. It is uncertain what influence the operation might have had in lengthening the life of the patient, as he was losing ground before the operation; he died as do other cases of advanced cirrhosis, with evidences of a progressive toxemia and gradual failure of all the organs to do their proper work. It is possible that repeated tappings may aid in the recovery of these cases through the formation of adhesions similar to those formed in operative procedures. The occurrence of ascites in cirrhosis is a bad prognostic sign; it is a visible measure of the extent of portal obstruction, and an indication of the inability on the part of nature to establish a collateral circulation.

The writers have collected twenty-two cases in which surgical intervention has been undertaken for the relief of ascites. The

results were: Immediate death, 22.7 per cent; ultimate death, 13.6 per cent; unimproved, 13.6 per cent; improved, 9 per cent; recovered, 40.9 per cent.

In conclusion the writers say that cases of cirrhosis of the liver stand injury badly, and are therefore poor subjects for operation. The exact estimation of the amount of degeneration of the various organs, including the liver, is very difficult or impossible; consequently the mortality of the operation must be relatively high. The statistics show that operative treatment of cirrhosis has won a distinct place, and in the future a clearer conception of the suitability of cases for operation may be possible. Without surgical intervention these patients as a class are doomed to a life of perpetual invalidism, requiring constant treatment and repeated tappings to make life bearable. Where the diagnosis of pure portal cirrhosis of the liver can be made, and where persistent treatment is repaid by insignificant results, the operation should be urged. In cases of ascites associated with other kinds of cirrhosis, or with chronic peritonitis, the operation should not be attempted.

Operating under X-rays.—

J. F. Baldwin, in the *Journal of the American Medical Association* of May 11, 1901, gives a description of what is probably the first operation done under the direct action of the Roentgen rays. The patient was a boy who was shot in the knee-joint, the bullet being freely movable in the joint cavity. An effort had been made to remove the foreign body, which had been located by the *x*-ray. A second operation was performed by the reporter, with a failure to secure the bullet, it having been carefully located by means of a screen and two exposures. A second incision made on the opposite side of the patella from the first failed to reach it. This led to the observation that the foreign body was movable in the joint, and that as the leg was placed in different positions it altered its location. The joint was opened by a small incision and a pair of forceps introduced while under observation with the fluoroscope screen; as the writer graphically describes it, it was "chasing a shadow by a shadow." The foreign body was finally grasped in the forceps, which could not be withdrawn owing to the inequalities of the articular surfaces. It was then pushed to the opposite side of the joint and removed through a small counter-opening.

He says that he never performed a more difficult operation. The room was necessarily dark, the day was hot, and the noise of the

machine was intolerable. In addition there was the fear of infecting the knee-joint from the suppurating wound which remained from the first incision. There was some inflammatory exudate following the operation, but recovery was perfect.

Trimanual Method of Percussion in the Diagnosis of Fluid Within the Abdomen.—

J. G. Clark, in the *University of Pennsylvania Medical Bulletin* for May, 1901, refers to the difficulty of distinguishing between soft tumor masses and encapsulated fluid. A tense hydrosalpinx or pyosalpinx may also be easily mistaken for a solid tumor, or a distended gall-bladder for a tumor of the liver or kidneys. Similarly, a deep-seated collection of pus about the appendix may be mistaken for a tumor of the cæcum. For the detection of tumor in these obscure cases he employs what he describes as a trimanual method of percussion, which in many cases clears up an otherwise doubtful diagnosis. In bimanual examination of a pelvic mass of questionable consistence, the intestines intervening between the anterior abdominal wall and the tumor may dissipate the percussion impulse of the abdominal hand, and while fluid may be present a wave of sufficient intensity to be felt by the vaginal touch is not induced. To overcome this difficulty the tumor is confined as closely as possible between the two examining hands, while percussion is made by an assistant. A few little quick taps will in this way, if fluid is present, give the sensation of a wave passing to the pelvic hand. In the same way an adherent and distended gall-bladder may be easily outlined, one hand pressing deeply over the hypochondrium, while with the other deep counter-pressure is made just below the fixed ribs. If fluid is present light percussions over the upper hand will give an unmistakable wave.

Incision of Psoas Abscess.—

R. W. Lovett, in the *Boston Medical and Surgical Journal* of May 16, 1901, gives the result in fifty-four cases of psoas abscess which were admitted to the Children's Hospital, Boston, during the last decade. The value of his study is increased by the fact that all the cases were included, and that in the majority the ultimate result was known. The principal questions associated with psoas abscess are: (1) What is the result of incising psoas abscesses, so far as life and the function of the limb are concerned? (2) If incision is advisable, what is the best method of operation? Of the fifty-four cases, forty-

nine were operated upon, and of these it is possible to report on the present condition of forty-seven. Of the five cases not operated upon, two were treated expectantly and recovered. A third was in such poor general condition that operation was not deemed advisable. A fourth died of intercurrent appendicitis while waiting for operation. A fifth case was treated expectantly, the result of which is not known. As a result of his study the writer comes to the conclusion that fever is not a necessary accompaniment of psoas abscess. Where it does occur the prognosis is not so good as where it is absent. The best operation is a lumbar or iliac incision, preferably the latter. It is best to put on a plaster jacket to enable the patient to sit erect very soon after the operation, a position which drains the abscess. This latter method has given the best results in the author's hands.

Adhesive Rubber Dam at the Site of Adhesions.—

J. B. Murphy, in the *Journal of the American Medical Association* of May 4, 1901, speaks of the practical impossibility of sterilizing the hands or the skin of the field of operation. The operator's hands are efficiently protected by rubber gloves, and after considerable experimenting he has succeeded in obtaining a rubber tissue which can be placed over the field of operation. It adheres closely to the surface of the skin, is elastic, and when the edges of the wounds are retracted it yields the same as the skin. In preparing for operation, the skin is first scrubbed and antiseptic methods are followed. Then the rubber is applied, and the incision in the skin is made directly through it. The rubber is allowed to remain in position, after which it is lifted at one end, put a little on the stretch, and divided where the sutures are inserted.

The purpose of the rubber dam is to prevent erosion of the skin and eczema which is caused by the irritation of purulent discharges. It is applicable in cases of artificial anus, cholecystotomy, gastrostomy, suprapubic cystotomy, and in draining the peritoneal cavity in cases of general peritonitis.

An Overlooked Nasal Factor in Ear Disease.—

Chevalier Jackson, in the *Journal of the American Medical Association* of May 25, 1901, says that stenosis is not the only factor in the development of ear disease due to nasal conditions. In a considerable proportion of his ear cases he has noted a thickening of the posterior edge of the vomer. The effect of this is to deflect the inspired current of air against the orifice of the Eustachian tubes. He has experimentally studied the direction of the current of air

which would be caused by such thickenings, making a section of a recent skull and producing an artificial thickening of the edge of the vomer by stuffing cotton under the mucous membrane and then blowing a powder into the nose. It was found that the latter was deposited over the Eustachian eminence. This thickening of the posterior edge of the vomer is not always present in ear troubles, nor are ear troubles always associated with it, but every morbid condition of the nose has its influence upon the ear. He urges that every thickening of the vomer, wherever found, should be removed, because of its probable influence in the development of ear disease.

Pagenstecher's Celluloid Thread.—

B. C. Stevens, in *The Lancet* of April 20, 1901, says that the introduction of this thread is a decided advance in operative surgery, especially in abdominal surgery. The smaller sizes form an ideal suture for the peritoneum; they do not slip, are easily threaded, and are very flexible. The tensile strength of the thread in proportion to its caliber is remarkable. The strength is, if anything, increased by the process of sterilization. A slight swelling of the thread occurs after boiling, but any water which it absorbs is readily removed by alcohol. Buried sutures of this material cause no irritation, though it is probable that they are not absorbed. The thick threads are useful in ligating the large blood-vessels or pedicles of tumors. Frequent boiling does not cause deterioration. It should supersede silk, as it is cheaper, more reliable, stronger, and lends itself to suturing much better. It should be sterilized by cutting into suitable lengths and winding on a glass reel. It is then removed and placed in a five-per-cent solution of phenol or methylated spirit, which preserves it indefinitely.

Bandages in Misplaced Kidney.—

George M. Edebohls, in the *Medical Record* of May 4, 1901, says that the value of retentive apparatus in enteroptosis depends entirely upon the associated condition. Where the lower abdomen is pendulous and there is a general descent of the abdominal viscera, an elastic bandage encircling and sustaining the lower two-thirds of the abdomen will give considerable relief. The same end is often obtained by the adjustment of a corset which spreads over the lower portion of the abdomen. The greater the degree of the associated enteroptosis, the better the prospect of obtaining a fixation of the movable kidney. All forms of apparatus with special kidney pads

or trusses are to be rejected, because they do not fix and sustain a movable kidney, and what pressure they exercise is injurious either to the kidney or to the neighboring organs, especially the vermiform appendix. In all cases in which there is no symptomatic relief by such palliative measures the operation of fixation should be performed.

Ventrofixation of the Sigmoid Flexure for Prolapse of the Rectum.—

C. A. Morton, in the *British Medical Journal* of April 13, 1901, describes the case of a woman aged 24, who suffered from a severe prolapse of the rectum which had existed for two years. Palliative measures had been employed with no benefit. The intestine was reached by an incision above Poupart's ligament, the dissection being made in such a way as to separate the muscular fibers without dividing them, in the same way as is employed in hernia. When the sigmoid was reached it was brought up into the wound and the mesosigmoid sutured to the peritoneum. The patient made a good recovery, but about a year later suffered from a slight prolapse, a portion of the rectum about the size of a small hemorrhoid projecting. The details of the operation would indicate that it is one which is easily performed, and under modern aseptic precautions ought not to have a large mortality.

THERAPEUTICS.

The Therapeutics of Nitroglycerin.—

H. E. Lewis, in *Merck's Archives* for May, 1901, refers to the fact that cases of poisoning by glonoin are rare, but one fatal case being on record, one ounce of the drug having been taken. In certain individuals there is a special susceptibility to the drug; minute doses may produce a headache lasting for several hours. Sometimes a dose as small as one-hundredth of a grain will be followed by a headache, slow respiration, and a weak pulse. These cases have some special idiosyncrasy. Where the vasomotor or mechanical condition is such that full dilatation is prevented, a special tolerance of the drug will be found to exist. In cases of interstitial nephritis associated with high vascular tension, glonoin may be administered in very large doses (from two to six grains daily) with marked benefit, and with none of the distress which commonly follows the toxic effects of the drug.

Glonoin finds its chief field of usefulness in those conditions in

which there is increased vascular tension. In angina pectoris it is equaled by no other drug, but it must be given in full doses. Combined with morphine, it favors the analgesic power of the latter drug. It is very useful in the vague dyspnea, precordial distress, and renal symptoms which accompany arteriosclerosis. Compounded with pilocarpine, it is especially valuable in acute Bright's disease and in puerperal eclampsia. It is useful in intestinal, renal, and biliary colic. In optic atrophy glonoin will often arrest or restore declining vision, and occasionally its administration is followed by an increase in visual acuity.

The vaunted efficacy of glonoin in all cases of sudden heart failure is based on a misunderstanding of its physiologic action. Where the heart is simply tired and flagging from overwork, glonoin is of value. In pneumonia and hypostatic congestion of the lungs, where the right heart is unusually taxed, both in its capacity and in the work to be done, glonoin meets the condition. The effect, as some writer has said, is like bleeding a patient into himself, but it has this decided advantage over venesection, that the blood is left in the body for future use. In all conditions of sudden increase of arterial tension, from acute or chronic disease, and consequent embarrassment of the heart, glonoin will invariably prove valuable. In heart failure from disease of the heart muscle or lesions of the valves the drug is contraindicated.

Reduction of Body Temperature by the Evaporation of Warm Water.—

F. R. Williams, in the *Journal of the American Medical Association* for May, 1901, refers to his early presentation of this subject at the meeting of the American Association of Physicians in 1895. Since that time he has given some hundreds of baths, chiefly in typhoid fever, and his experience has been so satisfactory that he again calls attention to the method. He claims that the reduction of temperature in his method amounts to nearly two degrees for each application, and that it is a much more comfortable method than cold baths, as commonly employed in the treatment of fevers.

In giving the bath the patient is placed upon a rubber cloth or woolen blanket. Strips of coarse gauze such as are used for surgical dressings are then placed so as to cover the exposed surface of the body. There should be but one thickness of gauze, which when moistened should cling closely to the skin. This is sprinkled with water at a temperature of 110° to 115°, the gauze being kept constantly wet. A current of air is passed over the patient with a fan in the hand, or an electric fan. The bath should last until about

one pint of the warm water has evaporated. The amount of evaporation should be measured rather than the time of the bath, as the amount of evaporation will depend upon the condition of the atmosphere and the amount of moisture it contains. The amount of heat withdrawn from the patient will depend upon the duration and frequency of the baths. An average reduction in temperature of 2.6° was obtained from twenty-two baths given in this manner to a typhoid fever patient during the mouth of July. The time required for each bath varied from fifteen minutes to one-half hour, and the amount of water evaporated was about one quart. While the shock of this kind of a bath is minimized, it must be borne in mind that the effects are not so mild that they may be given indiscriminately to very weak patients. The writer has employed these baths in pneumonia, and has found that in all febrile conditions delirium is lessened and sleep is improved.

Methylene Blue Injections in Pleurisy with Effusion.—

C. H. Lewis, in the *Medical News* of June 1, 1901, recommends the removal of a portion of the fluid by aspiration, and then injecting into the pleural cavity some substance which will stimulate inflammatory reaction and thus lead to an obliteration of the pleural sac. He has experimented with numerous substances, and finally decided that methylene blue, because of its antiseptic, anodyne, and diuretic properties, was the most valuable for injection. That success shall follow the injections depends upon several conditions. First, whatever drug is employed, it should be in permanent solution; its reaction and specific gravity should correspond very closely to that of the fluid in the chest cavity. The material injected must be antiseptic or easily rendered aseptic, and the volume of fluid in the sac must remain unchanged. These conditions are accurately met by using a part of the contents of the pleural cavity for making the solution. Consequently, he withdraws a portion of the effusion and dissolves in it methylene blue, about one part in fifty. The operation is performed with a median-sized aspirating needle fitted with asbestos piston and washers. The quantity of methylene blue employed in these injections, which have been used altogether in twenty-three cases of serofibrinous pleurisy, has amounted to from five to fifteen grains, the most of them receiving over ten grains. The amount of fluid removed varied from 60 to 100 cubic centimeters. The drug appeared in the urine in from nine to three days, the rapidity depending upon the quickness of absorption by the diseased membrane.

Treatment of Obesity.—

Debove in *La Semaine Médicale* of March 13, 1901, says that obesity is essentially a nervous disease. He believes that the nutrition of the body and the maintenance of it at a given weight are regulated by a nervous mechanism, in the same way that the heat of the body is controlled. It is essentially a condition of altered metamorphosis closely allied to gout, diabetes, chlorosis, myxedema, and arrests of development. The argument advanced in support of the nervous control of the body weight is based upon the fact that habitually more food is taken than is needed to maintain the nutrition of the tissues and in the ordinary oxidation for the production of energy. The remaining food is oxidized and gotten rid of under the regulating influences of the nervous system.

The application of these principles to the treatment of obesity consists first in the reduction of the foods to a point at which the excess of adipose is removed for purposes of oxidation; after this is attained he substitutes a voluntary regulation of the diet for the imperfect regulation of the nervous system. Upon the following diet a patient lost one hundred pounds in a period of five months: for breakfast, a cup of tea or milk; for luncheon, one or two slices of meat, a few vegetables, and a little salad, with four or five ounces of bread; for supper, a glass of hot milk with two or three ounces of bread, fruit if desired. Exercise he regards as of little value in the treatment of obesity, as it increases the appetite and thus more than compensates for the increased oxidation. Mineral waters are objectionable because of their tendency to interfere with digestion. Thyroids should be used only in those cases in which the obesity is dependent upon myxedema.

Adrenalin.—

Emil Mayer, in the *Philadelphia Medical Journal* of April 27, 1901, says that the aqueous extract of the suprarenal glands is an excellent culture medium; it is unstable, its preparation is difficult, the product is unsightly and variable in physiological activity. These objections are all overcome in the use of the active principle of the gland, whose solution is accurate, stable, and clean. He has employed adrenalin in the nose in solutions varying from 1-to-1000 to 1-to-10,000. The stronger of these solutions causes a blanching of the mucous membrane within a few seconds; the effect of weaker solutions is slower.

In no instance has there been constitutional disturbance. Solu-

tions of adrenalin when opened frequently for use soon change in color, becoming dark and opaque. These changes do not seem to alter the physiological activity of the substance. A small amount of chloretone added to the fresh solution prevents turbidity, and upon prolonged use there is noted only a slight change in color. Tablets of adrenalin tartrate are readily soluble in water; one dissolved in sixteen grammes of water makes a solution of 1-to-1000. Still smaller tablets are to be had, and one of these dissolved in enough water to fill the ordinary atomizer bottle will be convenient for patients' use.

The writer's experience has been so favorable with this substance that he regards the isolation of the blood-raising power of the suprarenal glands as an epoch-making discovery.

Suprarenal Gland in Peritonsillar Abscess.—

L. S. Somers, in *Merck's Archives* for May, 1901, says that the results obtained from the local use of suprarenal gland in tonsillitis are dependent upon the method of application and the time that the drug can be kept in contact with the inflamed tissue. Its efficacy will also depend upon the extent to which the vascular changes have advanced; if a case is seen early, the tonsillar inflammation may be aborted, even in cases in which the inflammation is severe. While the application may not cure the disease, it will convert it into a much milder condition. It is claimed by many writers that even in peritonsillar abscess the application of the suprarenal gland relieves the redness, swelling, and pain. A spray in the throat of an aqueous solution of the gland has many objections, the principal one being that the parts are covered with a tenacious mucus which prevents the thorough contact of the drug with the mucous membrane. The writer has been able to obviate this by prescribing five-grain capsules, which the patient is directed to empty upon his tongue and to masticate the drug slowly, retaining it as long as possible in the mouth and pharynx. At the end of five or ten minutes the mouth is cleansed with hot or cold water. The patient is directed to expectorate the drug, as it is only the local action that is desired.

Treatment of Muscular and Joint Sprains.—

Haldor Sneve, in the *Journal of the American Medical Association* of June 1, 1901, gives a study of a large number of injuries occurring among railway employees, the proportion of sprains amounting to 14.45 per cent. By far the largest number were the ankle and foot,

the wrist being next in order of frequency. A very frequent site was in the lumbar region of the back. The preponderating causes were slipping and falling. The results of his study lead to the conclusion that ligaments are rarely if ever torn in so-called sprains and are never stretched. The pathology in the majority of sprains is a rupture of the areolar connective tissue around the joint and a contusion of the lining membrane. In the treatment of all sprains the muscles should have passive exercise, beginning within the first few hours, and active exercise after the first day. Plaster casts should not be used at all, even in cases of fracture, unless it is impossible to maintain the proper position of the joint. Cloths wet with ice water are useful in the first few hours. Static electricity in connection with massage is an excellent treatment for sprains, but massage and active exercise should be instituted at the earliest possible moment.

Hydrochloric Acid in Lessened Activity of the Stomach.—

J. C. Hemmeter discusses in *American Medicine* of April 27, 1901, the logic of hydrochloric acid therapy. He believes that the administration of the acid supplements the work of the stomach and aids in bringing about a normal condition of duodenal digestion. His usual plan is to give twenty drops of the diluted acid in two ounces of water fifteen minutes before the meal. It should always be taken through a glass tube and the mouth afterward rinsed with a weak solution of sodium carbonate. As a remedy for improving the appetite the acid is conceded, even by those skeptical of its digestive power, to be of value. For this perhaps it is best given in doses of from ten to twenty drops diluted in three ounces of water on an empty stomach before meals. Hydrochloric acid is contraindicated when normal gastric secretion is augmented. He has observed cases in which no hydrochloric acid was present in the stomach, in which the administration of the acid caused gastric distress. One of his patients, a decided neuropath, could detect six drops of the acid when given surreptitiously.

Superheated Air in Chronic Catarrhal Otitis Media.—

G. W. Hopkins, in the *Medical Record* of June 1, 1901, describes an apparatus by which superheated air may be brought into direct contact with the external ear. It consists of an ordinary gas stove with a projecting metal pipe over the top, the opening forming an angle of about forty-five degrees. Surrounding the opening is a cloth sleeve which may be fitted accurately over the side of the head,

including the mastoid and the external ear. He claims to have met with marked success in the treatment of certain cases of catarrhal deafness. The action of the hot air is to stimulate the circulation and relieve the rigidity of the tensor tympani. The ossicles lie so near the surface that they receive the full benefit of the heat applied to the tympanum, and adhesions between the ossicular chains and the bony walls of the middle ear are readily removed. The contraindications are arteriosclerosis, serous effusions into the tympanum, and perforations. Occasional headaches are caused by the heat, but otherwise no disagreeable results have been noted. The apparatus employed for applying the heat may be a simple oil or gas stove, but it must have sufficient draft to secure perfect combustion, and there must be a perforation in the canvas sleeve near the point of contact with the ear to furnish sufficient circulation, that the hot air may reach the ear. Gauze packing over the ear and within the meatus to prevent burning is essential.

Digitalis as a Therapeutic Agent.—

W. H. Porter, in *American Medicine* of April 27, 1901, concludes a long article on the good and bad effects obtainable from this drug, as follows: The composition of this drug is, chemically speaking, complex, and some of its active principles antagonize others. The different preparations vary widely in their composition and action. Its cumulative effect is due to contraction of the arterioles, interfering with nutrition. It is both a useful and a dangerous remedy, with a very limited range of usefulness. Its chief value is in lesions of the mitral valve, and in these it should be given but a short time. It should only be employed where there is low arterial tension and marked venous engorgement. As soon as these conditions are overcome, its action should be suspended. As a diuretic it is only useful in cases with low arterial tension, where there is obstruction in the exit of blood from the kidney. It lowers the excretory activity of the kidneys and impairs their nutrition, and if pushed to its full extent may completely arrest their functional activity.

Ox-serum in Rectal Feeding.—

O. Grünbaum, in the *British Medical Journal* of April 6, 1901, states that he has employed ox-serum in rectal feeding with marked advantage. The serum may be obtained in large quantity at small cost, and it is easily prepared. He employs a formula composed of serum 90 cubic centimeters, milk 60 cubic centimeters, glucose 15 grammes, with a sufficient quantity of liquor pancreaticus. Each

rectal feeding should be preceded by a cleansing enema. Fats are by far the most difficult of absorption by the rectum and large intestine; hence the feeding should be supplemented by the daily hypodermic injection of from thirty to forty cubic centimeters of olive oil. By the systematic employment of this method he finds that the loss of weight can be diminished to about two ounces per week.

The unsatisfactory results of rectal feeding have long since been pointed out. The attempt to have all the elements of food absorbed by the bowel is certain to result in failure. The suggestions of Grünbaum have merit, as he does not attempt to overtax the intestinal absorbents, but gives such substances as are most readily taken up, and supplements them by the hypodermic administration of oil, which is most difficult of absorption by the bowel. This combination of rectal and subcutaneous feeding is the best that has yet been suggested, in cases in which food cannot be given by the mouth.

Treatment of Migraine.—

W. Whitehead, in the *British Medical Journal* of February 9, 1901, says that for twenty-five years he has treated all of his cases of migraine by the introduction of a seton into the back of the neck. It has proven successful in the most obstinate cases. The use of a seton was common in the early part of this century, and the writers of that time commended it. Such time has elapsed since it has been employed that medical men now have to be directed as to the mode of its introduction.

Whitehead grasps the skin at the back of the neck, raising it between the thumb and forefinger from the underlying tissue; a knife is then thrust through from side to side, and before it is removed a probe having an eye at the end is introduced, using the knife as a guide. The probe is then threaded with a piece of ordinary tape, which is drawn through and tied loosely. The tape is moved from side to side each day. The operation is a trivial one, and is easily done under chloride of ethyl anesthesia.

Allen's Iodine Test in Pityriasis Versicolor.—

Jacob Sobel, in the *Philadelphia Medical Journal* of June 1, 1901, says that this disease of the skin is frequently overlooked, its presence being attributed to the faulty elimination of the liver. The disease is mildly contagious. In the treatment both penetrating and desquamating agents must be employed. If the remedies be restricted to those that merely cause an exfoliation of the cuticle, there will invariably be a relapse. As long as a vestige of the disease remains

another attack is certain, and it is very easy to overlook patches which closely resemble in color the surrounding skin. Especially is it difficult to recognize them in parts that are covered by hair, and such neglected patches lead to reinfection. In Allen's iodine test we have a valuable means for bringing these patches into view, as it causes the involved portion of the skin to stand out in marked relief from those which are not affected, and it indubitably makes the diagnosis of this condition from other forms of skin disease.

Mercurol Inunctions Preparatory to Skin-grafting in Ulcers of the Leg.—

W. R. Stone, in the *Medical Age* of April 25, 1901, says that in the treatment of leg ulcers mercurol finds its most satisfactory application. In all he has treated seven cases. In five the ulcer was dressed with a solution of tincture of myrrh, and then an ointment of vaselin containing twenty grains of mercurol to the ounce was applied for five days. The ulcer was then found to be clean and the granulations healthy. In two of the cases the mercurol ointment alone was used, and the results were equally satisfactory. In all of the cases skin-grafting was employed, and at the end of two weeks the patients were able to leave the hospital cured. In all of the cases the ulcers were foul, and the results obtained compared favorably with those obtained by any other method. In skin-grafting in syphilitic ulcers, only about 24 per cent of the cases do favorably; therefore the author's experience of seven consecutive successful cases is worthy of note.

Epidural Analgesia, After the Method of Sicard.—

Widal, in *La Presse Médicale* of May 15, 1901, notes the frequent references which are found in recent literature to the relief of lumbago and sciatica by the injection of cocaine into the subarachnoid space. Sicard has obtained the same success by injecting cocaine into the epidural space. The needle is passed between the two tubercles at the base of the sacrum; it readily penetrates the skin and the posterior spinal ligament. The cocaine is rapidly absorbed from this space and pain is relieved immediately. One case, a patient suffering from sciatica of two months' duration, was instantly relieved by an injection of two centigrammes of cocaine dissolved in two centimeters of water. This method of analgesia is applicable to higher levels in the cord and will overcome intercostal and visceral pains. In one case of intercostal analgesia, and in one of severe gastric crises, there was immediate cessation of pain.

Treatment of Different Varieties of Chronic Endometritis.—

A. H. Goelet, in the *International Medical Magazine* for April, 1901, gives an outline of the treatment adapted to the different varieties of chronic endometritis. Curettage is one of the most effective measures when its limitations are appreciated and the operation is properly executed. It should always be regarded as only an initial step in accomplishing certain results; too often it is regarded as the sole means, or the only thing necessary. Curettage is frequently performed where it is not indicated, in cases where there is simple hyperemia, and when the disease is confined to the cervix. Such injudicious use of the curette results disastrously, as it inflicts needless traumatism upon the endometrium. Such an error may be avoided by a clear understanding of the causes underlying the endometritis and a careful study of the diagnostic indications in an individual case.

Clinically, he distinguishes four varieties of chronic inflammation of the endometrium: (1) Chronic catarrhal endometritis; (2) chronic purulent (infective) endometritis; (3) chronic endocervicitis; and (4) senile endometritis.

Catarrhal endometritis is due to hyperemia, and all conditions which tend to increase congestion in the pelvic organs contribute to this condition. Such causes should be removed before treatment is begun. The long-continued congestion produces an infiltration of the submucous structures and sometimes hypertrophy of the mucous membrane. This prevents drainage, and the accumulation of irritating secretions adds to the inflammation. This condition should be treated by negative galvanic applications to the canal, using conical dilating electrodes and a current of ten milliamperes for two or three minutes. This should be repeated every second day and followed by stimulating faradic applications by means of the bipolar electrode in the vagina. When the discharge is mucopurulent, or so viscid that it does not readily escape, a double-current irrigator may be employed, using a mild antiseptic solution.

Chronic purulent endometritis as a rule follows labor or abortion and is caused by infection. It may sometimes be managed by the methods recommended for catarrhal endometritis, but it is usually well to begin treatment by dilating the canal and a careful, thorough

curettage of the cavity. The purpose of the curettement is to remove the degenerated mucous membrane, and by the pressure of the curette to empty the submucous glands and the pent-up secretion with which they are distended. It is usually necessary to employ a sharp instrument at the internal os and in the cervical canal, but the body of the uterus should be scraped with a copper-edged instument with a rigid shaft. The latter will remove all that should be taken away from the body of the uterus without damage. The fundus and the cornua should not be overlooked; they are readily reached by a smaller curette. Troublesome hemorrhage is easily overcome by irrigations with an iodine solution composed of one-half ounce of the compound tincture to a pint of water. Daily irrigations should follow curettage, using an antiseptic solution or normal salt solution, as the case seems to demand, the solution being hot. The patient is kept in bed usually a week. If the canal begins to contract before the necessity for drainage has ceased, or if the glands do not drain satisfactorily as shown by a continuance of the discharge, negative galvanic applications should be made, the same as for catarrhal endometritis. Treatment should not be suspended until there is distinct evidence of cure, which shows that a healthy endometrium has been produced.

Chronic endocervicitis involves the glands of the cervix and is characterized by a thick, tenacious, transparent discharge. These form a very obstinate class of cases which drift from one practitioner to another with no relief. The treatment should begin with negative galvanic applications to the cervix, the electrode having a metallic surface that will fit the canal, coming in contact with the entire mucous membrane of the cervix. A current of two milliamperes is used until the discharge becomes thin, so that it can be squeezed out of the canal by compressing the cervix between the back of the speculum and a dressing forceps holding a pledget of cotton. After each application a tampon of cotton soaked in iodine with glycerin, one part to thirty-two, is inserted, which at the end of twelve hours is removed. Under this treatment the discharge becomes thin and drains readily. When this stage is reached, applications are made with an electrode made of pure silver, which just fits the cervical canal. This is connected with the positive pole, the applications being of from three to five minutes with twenty-five milliamperes of current. These applications set free the oxychloride of silver, which by the cataphoric action of the current is made to penetrate to the glandular structures; it is antiseptic, astringent, and non-irritating.

Senile endometritis in the majority of cases is a degenerative process and demands drainage for its cure and nothing else. Curettage is useless, and an attempt to forcibly dilate the canal may result in rupture. Drainage can be secured by making negative galvanic applications, using conical dilating electrodes, a moderate strength of current, and short applications.

Infectious Diseases Spread by the Milk Supply.—

George M. Kober, in the *American Journal of the Medical Sciences* for May, 1901, gives the results of his study of 330 outbreaks of infectious diseases caused by contaminated milk. Milk inspection, as at present carried out, only ascertains whether it has been skimmed or watered, and if it contains the total solids and fats to bring it up to an average standard. There is no effort to prevent the spread of scarlet fever, diphtheria, and other conditions dependent upon the bacteria contained in milk. He has studied 195 epidemics of typhoid fever, and has found that in 148 the disease prevailed at the farm or dairy. In sixty-seven instances the infection probably reached the milk through the well water with which the utensils were washed. In sixteen of these the milk was intentionally diluted with contaminated water. In seven cases the infection was attributed to the cows wading in sewage-polluted water and pastures. In twenty-four instances the dairy employees acted as nurses for those suffering from typhoid, and in ten they themselves were suffering from the disease, continuing their work throughout a mild attack or working during the early stages of the disease. In one instance the milk tins were washed with the same dish-cloth that was used among fever patients. In two instances dairy hands were employed in night-soil service, and in another instance the milk had been kept in a closet in the sick-room.

Of ninety-nine epidemics of scarlet fever, the disease prevailed in sixty-eight instances either at the dairy or milk farm. Of thirty-six outbreaks of diphtheria, there is evidence that the disease prevailed at the dairy or farm in thirteen instances.

Of 330 epidemics, 243 are recorded by English authors and fifty-two by American. This great preponderance in the descriptions of English and American epidemics he thinks is to be attributed to the habit of consuming milk raw which largely prevails in the United States and England; on the Continent the milk is usually taken after it has been boiled.

The writer urges the establishment of dairy farms for the produc-

tion of pure milk. He thinks that the ordinary commercial competition and a dissemination of the knowledge of milk contamination among the public will do more to secure an improved supply than will legislation, although boards of health should be given plenary jurisdiction over the sources of milk supply. Thus, the Health Department of the District of Columbia was able to eliminate an epidemic of scarlet fever which had its origin in infected milk by reason of a law regulating the sale of milk, which was enacted in 1895 upon the recommendation of the Medical Society. Strict attention to details in the gathering of milk has shown that the number of bacteria contained in it may be reduced to one-tenth, or even less, of the number which is present in milk gathered without special reference to avoiding contamination.

The Infections in Diseases of Women.—

Charles A. L. Reed, in the *St. Paul Medical Journal* for June, 1901, formulates the following rules in relation to infection in diseases of women: (1) The epithelial surface of the genital tract in its integrity is an efficient barrier against invasion of the underlying structures by pathogenic microorganisms that establish parasitic and saprophytic relations to the vagina. (2) The normal cervix and its contained secretions are adequate barriers against invasion of the uterus by pathogenic bacteria that are capable of maintaining a habitat in the vagina. (3) The vagina possesses certain powers of self-disinfection, which work only against the organisms that are at once true parasites and facultative aerobes. (4) Certain pathogenic bacteria, notably the gonococcus of Neisser, the Klebs-Loeffler bacillus, and the oidium albicans, find in the warmth and moisture of the genital epithelium conditions favorable to their propagation and to the increase of their virulence, whereby the epithelium itself may be destroyed, to the extent of losing its protective properties. (5) Pathogenic bacteria innocuously present in the genital tract may become virulent when introduced into the underlying structure through a breach in the protective epithelium. (6) Pathogenic bacteria when introduced into previously normal tissues immediately provoke the process called inflammation, the essential phenomenon of which is an exudate and rapid extra-vascular migration of the leucocytes, which act as phagocytes in preventing the further invasion of the system. (7) Pathogenic bacteria that are not thus overcome by the leucocytes may enter either the lymphatic or the sanguiniferous circulation, producing secondary phenomena, septicemia, pyemia, and even the death of the patient.

Glandular Fever.—

Marcel Labbe, in *La Presse Médicale* of April 17, 1901, says that glandular fever, as the term has been employed since Fifer's classical description of *drusen fieber*, designates an affection characterized by more or less febrile reaction with glandular tumefaction, but rarely followed by suppuration. Commonly the fever begins abruptly, with coryza or stomatitis and an erythema of the throat. This angina is often so slight that it escapes observation. Two or three days later the glands become swollen, those most frequently involved being in the neck, the submaxillary, or at the angle of the jaw. The ganglionic masses are often painful and the inflammation increases. Occasionally there may be suppuration. As a rule the fever declines a few days after the swelling begins, and for some time after the cessation of the fever the glands gradually decrease in size. The affection is usually benign, but suppuration may occur. This is a disease of infancy, usually of early dentition; occasionally it is observed in adolescence. Sometimes it occurs in several members of the same family, but it is not commonly grouped in a community in such a way as to suggest an epidemic. There is a varying infeciens in these cases: in some streptococci, in others staphylococci, and in a few pneumococci are found.

The writer regards the term glandular fever as a misnomer, if used in the sense of a specific disease. It has no specific germ, but is due to an infection derived from the mouth, nose, or the pharynx; it is a mere complication arising in inflammations of these structures.

Appendicitis in an Infant Aged One Year and Eleven Months.—

G. W. Newton, in the *Journal of the American Medical Association* of May 25, 1901, reports the case of an infant who at the time of his first visit was suffering from intestinal derangement. There was vomiting, but no temperature. Three days later there had been some improvement in the intestinal symptoms, but the stools were still green, had a bad odor, and the temperature was 101° F. The bowels were tympanitic. There seemed to be pain upon pressure over the region of the appendix, as could be distinguished by a difference in the crying. It was also noted that when the thighs were flexed upon the abdomen the child seemed more comfortable. An anesthetic was given, and under its influence a tumor could easily be outlined. An incision was made into the right side of the abdomen, which opened into an abscess cavity containing some foul pus. No attempt was made to find the appendix, the wound being stuffed with gauze.

Saline Infusion in Puerperal Eclampsia.—

Ernest W. Hey Groves read a paper on the pathology and treatment of puerperal eclampsia before the Obstetrical Society of London (*The Lancet*, April 27, 1901). In the treatment he especially referred to the use of saline transfusion and gave the notes of two cases. One was a primipara aged 23, whose convulsions followed an easy labor. In spite of morphine and pilocarpine, they increased in severity for twelve hours. Intravenous injection of 100 ounces of hot normal saline solution was followed by rapid improvement. The coma and convulsions lessened at once, and ceased within three and a half hours. A second case was that in which the coma and anuria ushered in labor at full term. The attacks were of extreme violence; twenty-six occurred between 2 A.M. and 4 P.M. An intravenous injection of seven ounces of normal saline solution lessened the attacks, which ceased at the end of fourteen hours. At the end of forty-eight hours coma had passed off and diuresis was established. Dr. Groves gives a table of forty-seven cases of puerperal eclampsia treated in this way, with a mortality of 12.7 per cent.

FORENSIC MEDICINE.

Responsibility of the Sexual Pervert.—

At least two cases of homicide under very aggravated circumstances have been committed in this country by sexual perverts in which insanity was pleaded and the prisoners acquitted on that ground. In discussing this subject we have taken a conservative view regarding sexual perversion or inversion as a striking sign of hereditary defect and of instability of the nervous system, but not as indicating mental irresponsibility.

A case is reported in the April, 1901, issue of the *Journal of Mental Science:* "A man was indicted for the murder of Thirza Isabella Kelly, at Stokesby. The deceased was a widow of good character, who lived alone with her baby in a small cottage. Prisoner seems to have been attracted by her, although they had never spoken. He remarked to two or three of his fellow laborers that there was a nice young widow living up the yard, and the day before the widow was killed he was seen walking up and down in front of the house and looking up at her windows. On Sunday, December 23, the mother of the deceased spent the day with her and left her safe in the house at 9 P.M. The same evening the prisoner went with some companions to a public-house about two miles away, and there they

drank from 7.15 till 10. Whilst they were there a joke was made about the prisoner which affected him very much, so that he burst into tears. The prisoner left his companions about a mile from home. On the following morning the deceased was found lying in bed in a pool of blood, with seven incised wounds in her body, and she died the same night. During the day she said that a man who she thought was the prisoner entered her room during the night. She screamed and resisted him, and he threatened to kill her, and went round the bed to the side where the baby was lying. Seeing that he meant to injure the baby she sprang out of bed, and there was a struggle, during which he struck her in the body. She then fainted. Upon this the police arrested the prisoner, who said, 'You have got the wrong man,' but subsequently he confessed, and before the coroner volunteered to give evidence, which was to the effect that when at the public-house he had been chaffed about having killed the pig. This, with the drink he had taken, upset him. He went to the house of Mrs. Kelly and broke in; she screamed and he used his knife. It appeared that two years ago the prisoner, during the absence of his master and mistress, broke into their house and stole a variety of articles, including women's underclothing, in which he dressed himself. He then killed a pig, scattering part of the body all over the premises. He afterward hung up the carcass, with the underclothes stuffed inside it. The prisoner was found guilty and sentenced to death."

In commenting upon this case the *Journal* says it is one of sadism, and holds that one whose instincts are thus perverted is in a certain sense of unsound mind. The plea of insanity properly failed, as, granting the existence of a morbid instinct, it was still not shown that the instinct was uncontrollable. "Had the prisoner gratified a normal lust in spite of the struggles of his victim, he would have been properly punished, and there is no reason why he should not be punished for gratifying an abnormal lust. To act on any other system would be to remove the influence of punishment from the very persons who most need it."

Murder the Result of Pure Homicidal Impulse.—

J. Wiglesworth, in the *Journal of Mental Science* for April, 1901, describes a case of murder resulting from a pure homicidal impulse. The crime was committed by a woman 28 years of age who had been for some time an inmate of an asylum. The assault was upon another patient, a quiet, demented individual, of a peaceful and inoffensive disposition. The wounds were made with a knife, and

several severe wounds were inflicted on the neck, from which she died two hours later.

At first it was thought that the assault had been prompted by delusions, but the examination of the patient who inflicted them, a woman named Granger, showed that such was not the case, but that the murder was prompted by a pure homicidal impulse. On the morning of the homicide, Granger, on getting out of bed, had told the matron that she felt an uncontrollable desire to kill some one. Later she stated that she had no animosity against the victim, and that she was sorry for the poor thing. She had this desire to assault some one, and the victim would have been any one with whom she happened to be alone. There was no evidence of either hallucination or delusion in the patient's conversation, and apart from some agitation of manner there was apparently nothing wrong with her. She said that a fortnight previous to this she felt the same desperate impulse to kill, and had possessed herself of a knife which she hid under her apron. She then followed a housemaid to her room, and was just waiting an opportunity to strike when some one came in. She said nothing of the feeling at the time, and it passed off. A recurrence of this impulse the following day led to her attempting to get one of her fellow patients into a room by herself. In this she failed, so that no assault was committed.

An examination of the patient's previous history shows that several members of the family have been insane, and that prior to her admission to the asylum where the homicide was committed she had been in several institutions for the insane, and was once an inmate of a house of refuge in London. While there she attempted to commit suicide, and made several assaults upon other inmates.

The case gives the reporter an opportunity to comment upon the legal rules applicable to such cases. That the woman was insane and irresponsible there can be no question; but the pertinent inquiry arises, "Was the woman, at the time she committed the crime, suffering from any disease affecting her mind, which prevented her knowing the nature and quality of the act?" The answer to this must certainly be in the negative, as she showed a full knowledge of what she was doing and planned the deed with some amount of premeditation and artfulness. "Knowing, as she did, the nature and quality of her act, was she aware that such act was wrong?" In support of an affirmative answer to this question there is her previous rationality, the absence of delusional incentive to the deed, and the admissions she made subsequent to it. All

these would indicate that she was quite aware that her act was wrong, although the callousness she displayed after the crime pointed to her possessing an antisocial nature. She acted in response to an overpowering impulse which is not officially recognized as carrying with it irresponsibility.

It would have been interesting to have the rulings of the judge had this case come to trial; as the patient was an inmate of an asylum at the time the case was dismissed by the examining magistrate. Had the crime been committed while the person was at large the result might have been quite different.

Some Old Records of Epidemic Arsenic Poisoning.—

C. S. Reynolds, in the *Medical Chronicle* for April, 1901, gives an account of three old epidemics of arsenic poisoning, which are somewhat similar to those that have been described as occurring in Manchester and Liverpool due to contaminated beer. The first epidemic occurred in Paris in 1828, the origin of which was never ascertained. The epidemic was first described before the Royal Academy of Medicine by Chomel. The records were subsequently studied by Rochette in 1871, under the title "*De L'Acrodynie.*" The symptoms, as given by the latter writer, correspond very closely with arsenic poisoning; there was more or less chronic erythema of the hands and feet, and a paralysis of the upper and lower extremities. This was accompanied by gastrointestinal disturbances, inflammation of the eyelids, bronchitis, and edema. The working classes and trades were most affected, and the center of the epidemic was in the Faubourg Saint Germain. Genest, who studied this epidemic, came to no conclusion as to its cause, but Barthelemy, in 1828, regarded it as an epidemic of arsenic poisoning. It was not confined to Paris alone, but extended to Troyes, Meaux, and St. Germain-en-Laye.

The epidemic of Hyeres was similar in most respects to the earlier one; it occurred in 1888. This was clearly traced to arsenic which had been used in 1882 by the proprietor of a large vineyard to overcome the ravages of phylloxera. The method was found to be quite ineffectual, and after abandoning its use he found that he had about 150 pounds of white arsenic on his hands. Some five years later this arsenic had been forgotten and its place of storage changed. It was the custom of this manufacturer to use potassium sulphate in a process known to the trade as plastering wines. In some way the arsenic was used in place of potassium sulphate. In 1888 the physicians in Hyeres were startled by the appearance of a peculiar epidemic which affected a large number of people. The disease was

characterized by fever, congestion of the conjunctivæ, swelling of the eyelids, coated tongue, pain in the abdomen, nausea, and diarrhea. In all 435 persons were affected, of whom eleven died. An analysis of the wine showed it to contain from three-quarters to twelve grains of arsenic per gallon. The amount of arsenic in the Manchester epidemic, in which beer was contaminated, was from one to one and one-half grains per gallon.

A third epidemic occurred at Havre, and is known in the annals of French medical jurisprudence as *L'affaire Pastre-Beaussier*. This, in effect, was a case of wholesale homicidal poisoning with arsenic, which was carefully investigated by Brouardel and Ponchet. In all fifteen persons were affected, of whom three died. The order of the symptoms was: (1) digestive disturbances; (2) laryngeal and bronchial catarrh with various eruptions; (3) disturbance of sensibility; (4) paralyses.

A similar sickness was noted in the epidemic in Paris in 1828, and in that of Manchester in 1900. Brouardel points out that if a suspicion of arsenic poisoning is roused the urine should be examined, and another method which may be employed during life is to test the hair for arsenic.

A French Decision in a Malpractice Suit.—

The *Medical Record* of May 25, 1901, has an extract from the *New York Tribune* which is quoted from the Paris correspondent of the *London Telegraph*. The case cited involves a curious extension of the law regarding malpractice suits, which may possibly become current in countries under the common law of England. A woman was treated with the Roentgen rays, and in consequence she received a severe burn and lost her hair. She sued her medical adviser, Dr. Renault, for one thousand dollars. The usual defense was made that a physician is not responsible for failure of treatment or even for accidents arising from it. According to the French law a physician is not responsible for any mishaps or ill consequences arising from a reasonable course of treatment. He is not responsible for what the French term "ordinary mistakes;" only for "gross mistakes."

In deciding the case the French tribunal did not say that the physician had been guilty of a gross mistake, but condemned him to pay the thousand dollars on the ground that he was running a radiographic institute, and in this capacity was acting really as a tradesman, and was equally responsible with any other tradesman for accidents arising from his action.

While the French jurisprudence is in many of its forms strikingly different from that in Anglo-Saxon countries, their decisions are many of them similar. Thus the ordinary mistakes, as interpreted in their courts, clearly correspond to the injunction to use such ordinary and reasonable care as is required in our own tribunals. Gross mistakes would correspond to our rule of want of ordinary knowledge or reasonable precaution such as holds a physician accountable under our laws. The curious feature of the decision is that which makes a physician who is running a radiographic institute a tradesman in the ordinary acceptation of the word.

Acetanilid Poisoning from External Absorption.—

J. L. Mennasses, in the *International Medical Magazine* for May, 1901, reports two cases of acetanilid poisoning from absorption from external wounds in children. The first patient was a baby six weeks old who had a troublesome eczema of the buttocks. A powder was applied composed of equal parts of acetanilid and subgallate of bismuth. Twenty-four hours later the skin of the child was markedly cyanotic, the temperature was subnormal, the respirations were feeble and shallow, the pupils were dilated, the heart rapid and weak, and extremities cold. Hot applications were ordered, with the internal administration of whiskey, and at the end of three days all symptoms of poisoning had disappeared.

A second case was that of a child of two and one-half years who had received a severe scald of the buttocks. A powder composed of equal parts of subnitrate of bismuth and acetanilid was applied, which soon relieved the pain. On the second day the lips, ears, and finger-tips were blue. The symptoms of prostration were present as in the first case, but not to the same degree. The blueness gradually disappeared, and at the end of a week the wound was healed.

A New Method of Differentiating Between Human and Animal Blood.—

Heretofore the only means of distinguishing between human and animal blood was in the identification of the nucleus or the oval outline in certain species. The average diameter of the corpuscles has been relied upon to distinguish the blood of species which have a round non-nucleated corpuscle. At one time the latter was supposed to be a positive means of differentiation, but of late years the most that conservative medical jurists would say was that a given specimen of blood was consistent with human blood, but they would not say that they could distinguish it from the blood of a dog, or

possibly from some of the other domestic animals. It certainly will excite deep interest to know that A. Wassermann and A. Schütze have published in the *Berliner Klinische Wochenschrift* for February, 1901, a statement that they are able to distinguish the blood of the human from that of all animals.

The test is made by injecting a rabbit with human blood serum, using ten cubic centimeters. At the end of five or six injections it is found that a physiological sodium chloride solution of human blood will produce a cloudiness in the blood serum of a rabbit so treated. It is only human blood that will give the reaction. The blood of all common animals has been tested, and in no instance was a reaction obtained; the only blood in which the test was doubtful was that of a monkey.

It is claimed that the test is equally valuable in old and dried blood-stains. It has been made upon stains more than three months old in which all the secondary changes which take place in the hemoglobin were present.

Poisoning by Anilin.—

Frequent reference is found in recent literature to cases of anilin poisoning. St. Clair Thomson reported to the Clinical Society of London (*The Lancet*, April 20, 1901) a case of poisoning from the use of anilin oil. A 10-per-cent solution of cocaine in equal parts of anilin oil and rectified spirits was given for a furunculosis. A small pledget of cotton well moistened with this solution was used at bedtime. The following morning the application was repeated. Two and a half hours later a blueness of the finger-nails and the face was noted, the cyanosis including the lips and tongue. There was no fever or mental disturbance, the respiration was normal, and the pulse was small and somewhat increased in frequency. An examination of the heart showed some enlargement, the border of the left ventricle being two fingerbreadths out of the nipple line. The blue color disappeared during the course of the day, and the area of cardiac dulness became normal.

A Surgeon's Responsibility for the Acts of His Assistants.—

This question is discussed in the *Journal of the American Medical Association* of June 15, 1901, and grows out of an action which was brought against a surgeon in Columbus, who had a death due to leaving a gauze sponge in the abdomen. This action has been withdrawn in consequence of a recent decision in Atlanta, Georgia, where a surgeon has been discharged of responsibility for the same

kind of an accident, it being held that his employment of a properly qualified nurse, and the fact that he had asked her three different times if the sponges had all been accounted for and she replied in the affirmative, relieved him from responsibility. In the Columbus case suit has been entered against the hospital, and the outcome of the litigation will be of considerable interest to physicians, particularly those with a hospital service, as it will tend to settle whether the nurse acts as agent of the hospital or the surgeon.

Dying Declarations.—

A case was recently cited in *The Lancet* of May 25, 1901, in which a so-called dying declaration was ruled out on the ground that it was in reality not such, but differed very little from an ordinary deposition, made by a sick person, or one who believed that he would not recover. A dying declaration, to be admissible, according to the judge who tried the case, should be made by the deceased person under the idea that dissolution was imminent, and should not be in answer to the questions of others; and hence a mere questioning of a sick person, by a physician, for example, even if made in the presence of a magistrate, is not admissible as a dying declaration.

It is understood that all original communications sent to this journal are for its pages exclusively, excepting in cases where articles are published in the transactions of the Societies before which they are read, or in which an abstract appears. Articles will be illustrated. Authors will be furnished a liberal number of reprints; or, if they so elect, an honorarium will be paid for original communications.

Books for review, exchanges, and all matters relating to the editorial management, should be addressed to Harold N. Moyer, M.D., 103 State St., Chicago, Ill.

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ORIGINAL ARTICLES.

RECENT PROGRESS IN BACTERIOLOGY.

BY D. H. BERGEY, M.D.,
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There has been considerable progress in bacteriology during the past twelve months in all lines of research, and it is not my purpose to take up in detail the progress made in more than two special fields—that is, one line of studies in the field of pure bacteriology, and several lines of research in applied bacteriology.

Progress in pure bacteriology during the past year presents many advancements in our knowledge of the morphology, biology, and biochemical characters of bacteria. These studies comprise observations upon the internal structure of bacteria especially with reference to the character and significance of the so-called polar granules of Ernst. These have been found in a large group of organisms, and their biological significance has been studied in detail by Drs. Hugo Marx and Friedrich Woithe of Berlin (*Centralblatt f. Bakteriologie*, Bd. xxviii). These gentlemen have found that these polar granules are dependent upon the character of the nutrition in the cell, and they believe that the organisms in a culture containing these granules are the preservers of the species and contain a specialized form of protoplasm, which they designate germ protoplasm in contradistinction to the remainder of the protoplasm, which they term nutritive protoplasm.

A considerable amount of work has also been performed with regard to the significance of the so-called branching forms of bacilli, more especially of the tubercle and diphtheria bacilli (work of Dr. N. Gildersleeve). The consensus of opinion seems to tend in the direction that these are not true branching forms, but merely sprouts

given off from one or more of the polar granules of Ernst. This opinion, however, would also indicate that these granules represent a specialized form of protoplasm within a cell, though this specialization is not considered of the same character as the nuclei in cells of higher organization. The contention by a number of bacteriologists that these so-called branching forms of bacilli indicate that the species presenting these appearances were related to the mycelial forms in plants standing somewhat higher in the vegetable kingdom seems to be refuted by the conclusions reached with reference to these studies, and uphold the opinion that these organisms belong to the group of schizomycetes or fission fungi, in which they had been classed since the early days of bacteriology.

These studies show the direction in which part of the research has tended in recent years. Other investigations in pure bacteriology might be cited, but would prove less interesting and less instructive to the general practitioner than the studies in applied bacteriology which I shall next consider. There has been a great deal of activity in the field of applied bacteriology in the past year as heretofore. This is of course the most important phase of the work, and is also the field in which the results will be better appreciated by the physician.

A great deal of work has been done on the nature and mechanism of immunity, and in this field I desire to review briefly the important work performed by several able investigators: Emmerich and Loew's work (*Zeitschr. f. Hygiene*, Bd. xxxvi), with regard to the immunizing substance contained in cultures of pyocyaneus and other organisms in the artificial preparation of antitoxic substances, has elicited a great deal of interest. They had shown, in a previous contribution on this subject, that pathogenic bacteria are capable of producing proteolytic enzymes in the test-tube as well as in the animal body, and that these enzymes are capable of dissolving the protoplasm of the bacteria producing them. They demonstrated that the immunizing substance was of the nature of an enzyme, and that it was possible to prepare antitoxins artificially by the addition of blood serum and the juices of organs to these enzymes *in vitro*, and then produce curative effects by inoculating these artificial antitoxins into animals. They have called these enzymes nucleases. They found that most nucleases are capable of dissolving only the protoplasm of those bacteria which produce them, but they found also that the nucleases of other organisms, for instance the proteolytic enzyme of the bacillus pyocyaneus, are capable of dissolving the protoplasm of other bacteria. The pyocyaneus proteolytic

enzyme, when combined with blood serum or fluids of organs—pyocyanase-immun-proteid—is capable not only of dissolving the diphtheria bacillus in human and animal bodies, but also of neutralizing the effect of the diphtheria toxin. They also found that it had a similar action upon anthrax, typhoid, and plague.

They state that artificial immunity against infectious diseases rests upon the formation of conform nucleases in the organism and the combination of the same with the body albumin under the influence of the alkalinity of the blood.

In their second report, which appeared during the past year, they have strengthened their previous statements and give a series of investigations with the bacillus of swine plague which shows that it is possible to prepare, by artificial means, an antitoxin of great efficiency in this disease.

Another series of investigations which throw considerable light upon the question of immunity is that reported by Drs. Ehrlich and Morgenroth (*Berliner Klin. Wochenschr.*, 1901), in which they consider in detail the nature of the substances which bring about hemolysis—that is, solution of the red blood-corpuscles in the body. They had demonstrated in previous years that by immunizing guinea-pigs against defibrinated rabbit's blood a hemolytic substance was formed in the blood of the guinea-pig, which, when mixed with normal rabbit's blood, rapidly dissolved the red blood-corpuscles.

Several years ago Ehrlich promulgated a theory in explanation of the mechanism of immunity against infectious diseases—the theory which is based upon the assumption that immunity is produced through a specific reaction which takes place in the body as the result of the action of the bacterial poisons upon the body cells. He places the production of immunity upon a chemical basis in that he shows that the immunizing substance is produced as the result of the union of the bacterial poisons with some of the constituents of certain body cells. This theory of immunity is known as Ehrlich's "side chain theory," because the toxins are believed to unite with the one or the other of the side chains of the complex chemical substances composing the body cells.

The process of the antibody production, as it proceeds according to the side chain theory, is a complex one and consists of a number of phases (combination, regeneration, casting off), which in part are independent of each other. A series of circumstances can arise, however, which may inhibit certain phases of the process. Through the anchoring of certain poisonous substances by the cell it may be

so injured that antibody formation does not take place, or only in very small quantities, because the regenerative power of the cell is affected. This will happen especially with highly toxic substances in case the receptors of these substances are attached to the cells of vital organs, as those of the central nervous system, as in the case of tetanus poison.

The recent work of Ehrlich and Morgenroth is mainly an elaboration and extension of this theory of the mechanism of immunity. They show that in the immunization of one species of animal against the blood of another species there is produced in the blood of the immunized animal a substance which is capable of dissolving the red blood-corpuscles of the animal with whose blood it has been immunized. This solvent substance has been designated hemolysin. By these experiments they were able to demonstrate that the mechanism of immunization against the red blood-corpuscles of a foreign species of animal is identical with that of immunization against bacterial poisons, and that the two processes follow analogous laws.

They find that there are two substances formed in immunity, the so-called immune body or receptor, and the complement, and through the combined action of these two substances the red blood-corpuscles are dissolved. The solution of the blood-corpuscles is brought about by the immune body uniting with the corpuscles and the complement uniting with the immune body, the immune body serving as the connecting link between the corpuscles and the complement. This function of the immune body is demonstrated by the fact that the serum of an immune animal, when heated to 56° C., loses the immune body, and in consequence it is no longer capable of dissolving the red blood-corpuscles. The bacteriolytic action of immune sera upon bacteria has been shown to be analogous to the hemolytic action of specific sera upon blood-corpuscles. It has been found that the quantities of these two substances—namely, receptor and complement—contained in a specific serum may vary to a considerable extent, in fact the immune body may be present in great excess without increase of the complement content; and that in cases of disease the complement can disappear, being rapidly disturbed or formed very slowly. The same is true for the immune body. Which of these two factors is brought in question in a particular instance cannot be stated at present, and further investigation is necessary in order to obtain an insight into the important question as to the method of natural disposition to disease or its alteration, the increase of resistance or the loss of resistance.

As the result of their extensive investigations they conclude that

it is advisable to immunize different species of animals against the same poison and then employ the mixed sera of these animals in the treatment of disease because the immune bodies formed in the blood of one animal differ from those produced in another animal, and, consequently, a mixed serum would be more likely to prove beneficial than one obtained from a single species, because the mixed complements, as well as those normally present in the human body, can then be brought into action.

Another series of investigations which are of the greatest importance are those of Drs. Max Neisser and Wechsberg (*Zeitschr. f. Hygiene*, Bd. xxxvi) upon the poisons produced by the staphylococci. Contrary to the generally accepted opinion of bacteriologists, these gentlemen have shown very definitely that the staphylococci produce a soluble toxin which is very closely allied in its constitution to that produced by the diphtheria and tetanus bacilli. They found that there were present in this toxin two distinct poisons, one having an affinity for the red blood-corpuscles, producing hemolysis, and the other an affinity for leucocytes and other body cells, producing degeneration and death of these cells. They found, moreover, that there was a variable quantity of staphylococcus antitoxin preexisting in the blood of human beings as well as in that of certain animals, and that it was possible by the injection of filtered staphylococcus cultures to increase the normal antitoxin content of rabbit's blood to a considerable degree. It seems, therefore, reasonable to expect that in the near future it will be possible to treat these troublesome forms of infection by the staphylococci by means of a specific antitoxin.

Considerable work has been done in the past year upon the question as to the nature of the agglutinin reaction of immune sera, and there is still much to be learned on this point.

It is now uniformly accepted that the Gruber-Widal reaction is of great diagnostic value in typhoid fever. The reaction, however, has certain limitations which must be borne in mind. The agglutinating power of the serum of non-typhoids is usually lower than that of true typhoids, being rarely present in dilutions of 1 to 50, though in certain anomalous conditions of the blood, as anemia, chlorosis, leucemia, and pseudoleucemia, there may be a reaction with dilutions so great as 1 to 50.

Durham (*Journal of Experimental Medicine*, vol. v, 1901) assumes that there are a number of components (corresponding to Ehrlich's receptors) in the body substance of the bacteria which are capable of dissolving a corresponding number of agglutinins, so that each

agglutinin acts upon a particular kind of bacteria; in this respect showing an analogy to the multiplicity of immune bodies which Ehrlich and Morgenroth have assumed to exist in the blood of immune animals. This assumption takes for granted the presence of a number of single agglutinins, and explains satisfactorily the variable degree of action of the typhoid agglutinin upon different cultures of the typhoid bacillus and the action of the agglutinin of specific sera upon different kinds of bacteria.

Loew (*Centralblatt f. Bakteriologie*, Bd. xxix) states that the "true" agglutination brought about by immune sera rests upon the fact that the surface of the bacteria becomes glutinous through a slow action of the proteolytic enzymes produced by the bacteria themselves, and that the same reaction takes place in cultures. In the immune serum this bacteriolytic enzyme is combined with animal albumin bodies, and hence it is weaker in its action upon the bacteria than when formed in cultures, and in consequence its bacteriolytic action is also weakened.

Another series of investigations which have been of a practical nature rather than experimental are those with regard to the immunization of the English soldiers and army nurses against typhoid fever by the inoculation of dead typhoid cultures. It has been the experience of the English army surgeons in South Africa that the nurses in the army hospitals frequently contracted typhoid fever from patients, but since the introduction of this mode of protection the danger of infection has been practically eliminated. There are no statistics at hand so far as I know to show the extent to which this mode of immunization has been of service in the general soldier, but the experience with the hospital nurses seems to warrant the expectation that it is of great value.

There have been numerous advances in applied bacteriology during the past year, many of which are of great importance, but it would lead us too far into the discussion of details in order to make these advances comprehensible to the general practitioner. Such advances which have been of signal importance are those made in the application of bacteriology to the detection and prevention of disease; the extension of our knowledge of the bacteriological analysis of water, of milk, of sewage, and of canned foods.

NOTES FROM THE CHILDREN'S WARD.[1]

BY ABRAHAM JACOBI, M.D., NEW YORK.

Case 1.—The child before you is thin, puny, and emaciated, but presents no obvious deformity. You note the very large abdomen, but at the same time you can easily count the ribs. An abdomen of this sort suggests several diagnoses; it may be tubercular peritonitis or an enlarged spleen. We have already excluded enlargement of the abdomen found in rickets; there is a possibility that a large tumor may be present, such, for example, as a renal sarcoma or hydatids. The greatest probability is that it is chronic tubercular peritonitis. The bloated condition of the abdomen indicates that we have to deal with a local paralysis, in consequence of which the weakened muscular layers of the intestines cannot expel the accumulated gas, nor it cannot be absorbed. You note that there is a tumor-like swelling in the epigastrium which indicates the exudation of lymph and intestinal adhesions between the coils of intestine, and probable adhesion to the abdominal walls. These conditions, together, confirm the diagnosis of a tubercular peritonitis, which is common in young children. Sometimes the peritoneum is the only part in which tuberculosis is found in children of this age. A cure may result spontaneously, and it is commonly facilitated by rest in bed and the use of guaiacol and iodide of potassium. In some cases it may be necessary to have recourse to a laparotomy, though medicinal treatment should at first be employed, especially if the ascites is marked. Close attention should be given to the feeding, and cod-liver oil should be administered. Ascites should be always carefully looked for, and the presence of tuberculosis in other organs. The prognosis is not unfavorable where the process is strictly confined to the peritoneum. During the two weeks that the child has been in hospital and under treatment there has been a gain of one pound in weight, which amounts to a five-per-cent increase.

Case 2 is a boy who came in yesterday with a history of having had measles two months ago, but no other trouble until the present symptoms developed. Yesterday he had a temperature of 103°, and to-day the temperature is 101.4°; the respirations are twenty and the pulse 128 to 152. The child was delirious all the time, unconscious, the pupils were dilated, and there was some rigidity of the neck accompanied by pain. He was able to move the limbs freely.

[1] Report of a clinical lecture delivered in the Jacobi ward, Roosevelt Hospital, New York.

There was nothing noticeable about the heart. The urine was heavily loaded with phosphates and contained a small amount of albumin, but no casts, though there was a considerable quantity of renal epithelium, which shows that there must be some irritation of the kidneys. No blood was found in the urine, but the symptoms are such as to indicate a toxic condition. In looking at the child's face you observe a frown, which is always an indication of pain, and as a rule it is of cerebral origin. The tongue is red and has lost part of its epithelium, a condition which is often associated with infection. In the case before us we may have typhoid, diphtheria, and, as a precaution, we should not regard scarlatina as positively excluded. The rigidity of the neck which was so noticeable yesterday may be due to encephalitis, or it may be the beginning of an acute rheumatism. There are a few cases in which the latter disease first shows itself in rigidity of the neck. In this case there is high fever and delirium, and in cases of this kind it is not infrequent for acute rheumatism to be mistaken for meningitis. Le Roux has tabulated a number of instances in which this mistake has been made. In this case we have the following symptoms: headache, frowning, delirium, rigidity of the neck, and enlarged pupils that do not contract. The conclusion to which we are forced is that we have probably to deal with a case of cerebrospinal meningitis, though one symptom of that disease I find absent, namely, Trousseau's "meningitic" marks. This sign is brought out by stroking the skin with the finger, there being first an anemia and then a hyperemia of the part over which the finger has been drawn. We must not, however, be too sure of the diagnosis, as it may turn out to be only an acute rheumatism after all. We will put the child on five grains of salicylate of sodium every two hours while awake or while in a state of delirium or coma, for the latter should not count as sleep. Yesterday, when the child was delirious, I thought it necessary to stimulate the heart, and with this in view administered digitalis, which produced the desired effect. To a child of this age—three to four years—digitalis can be given in relatively large doses. Strophanthus or quinine may also be given in relatively larger doses than in adults.

Case 3 was admitted four days ago. There is nothing important in the family history. The child is a year old, and upon superficial observation seems to be a well nourished baby. Upon closer examination its rotundity is found to be due to flabby fat. It was nursed by the mother for one month, and was then placed on imperial granum, whatever that may be, and milk mixed with water, an

altogether improper procedure. The results show what an American child can endure and still live. Now it is having an attack of pneumonia. It has been given a series of sponge baths accompanied by thorough friction to stimulate the circulation, and, all things considered, is doing well.

Case 4 is a little girl suffering from endomyocarditis. Listening to her heart it is found that the second sound is duplicated. This condition may be due to a general weakness of the heart, to fatty degeneration, or to inflammation. Strychnine was administered on the theory that there was a weakening of the whole heart, but it was not followed by improvement; in fact, from day to day the child grew worse. This led to the conclusion that a part only of the heart muscle was under the influence of the drug, it probably being that the sound part of the muscle was thus influenced. The result of the strychnine treatment was to increase the difference in the action between the healthy and diseased muscle. The strychnine was then stopped and opium given in its place, after which the child gradually improved. This shows that as a general practice we should be careful in giving strychnine, as myocardial changes are by no means uniform, parts of the heart muscle being involved in a pathological process, and other parts sound.

Case 5 is another child with heart trouble. She came here with a very irregular and weak heart and was given strychnine with very much the same result as in the case last described. Under codeine the condition improved.

The almost universal use of strychnine in weak heart emphasizes the findings in these two cases, in both of which it did harm. It is important in connection with a chronic heart trouble to order complete rest in bed, if you would restore compensation. In the large majority of cases the best advice would be for the patient to take a little digitalis and go to bed for a month or two. At the end of this time renew the digitalis and direct him to go to bed for another month. Of course, it is difficult for all patients suffering from heart trouble to do this, but in most cases, unless you get them to bed or into a hospital, they will show persistent symptoms of failure of compensation.

Case 6 is that of a baby who at first you might think appeared apathetic. Such an appearance would be indicative of paralysis in a child, but in the baby before us the rigid condition of the face points to spasm. The child's face is pale and a little bloated, and in the absence of dyspnea should point to the necessity of examining the urine. Affections of the kidney are common complications of pneu-

monia in both children and adults, and many patients who are thought to die of pneumonia really die of nephritis. In the child before us the movements of the nostrils show that there is some impediment to respiration, and where this is found attention should be directed to the respiratory organs. In this case the respirations are about 60 and the pulse 140, the proportion of respirations to pulse being one to two and one-half. The average ratio should be, in a young child, about ten to thirty-seven; whenever the ratio reaches twelve to fifteen or eighteen to thirty-seven, it shows that there is an acute inflammation of the respiratory organs.

Case 7 came into the hospital five days ago, suffering from an impediment to respiration. It was sponged and given digitalis, three minims three times a day, under which treatment it has improved. It is true that many such patients will recover without treatment other than being put to bed, but all of these infectious diseases interfere with the circulation and the structure of the different organs, particularly the heart. Conditions that were formerly attributed to high temperature are now, with greater justice, ascribed to the influence of toxins, and it is necessary to guard against their consequences. The case before us is one that will probably have a favorable outcome, but this should not permit us to remit our care or watchfulness, because no one can tell how much some of the important organs are damaged; hence the treatment will consist in reduction of temperature and drugs to maintain the heart's action. In pneumonia, from five to eight days must elapse before the crisis, during which the patient must lose a little every day; hence I give digitalis to sustain the heart's action. The theory of the self-limitation of disease, if taken to mean that a patient should be left alone, has many sources of error; for example, in whooping-cough it usually comes to an end in from two to four months, but we have means of reducing its duration, and there is every reason why they should be adopted. While whooping-cough is not in itself dangerous, the complications which accompany it often prove fatal.

Case 8 has been in hospital a long time. It has had meningitic symptoms with a number of complications. It has had pneumonia twice and an otitis, and during all the time that it has been in hospital it has been growing progressively weaker. A fortnight or more ago limited movements of the left side were noted, and it was concluded that there was a secondary lesion in the brain, probably a tumor or an abscess. Soon after the paralysis developed the condition of the patient was very low, but after that there was a slight improvement. Then there was noted a slight spasm of the fingers

and a spastic condition of the arm. This led to the conclusion that the child had tetany, which frequently results from rickets. A peculiarity in this case is that the tetany is confined to one side, which is very rare, and it is probable that the seat of the disease is to be found in the pons. In regard to the treatment of this condition, but little can be done in the case that we have before us. The child has had enteritis and is very much weakened. We shall administer barley water and milk, together with animal broths, and see what nature will do.

Case 9 is a child three years old which came to us with an interesting family history. The mother had four miscarriages and one still-birth. Instruments were used in the delivery of this child. At ten months of age it had what was thought to be cerebrospinal meningitis. When two years of age it had made no attempt to walk or talk, and there is now a general lack of development, both mental and physical, which may be due to two things: first, the forceps delivery may have resulted in compression of the brain or a hemorrhage; a second cause may lie in the condition of the mother, who has had four miscarriages, the fifth conception ending in a still-birth, and this is the sixth pregnancy. Such a history suggests hereditary syphilis, which could cause such symptoms as we have here. Acting under this latter suggestion we have been giving inunctions of ten grains of mercurial ointment, and have administered three grains of iodide of potassium thrice daily. Irregularity in the teeth lends additional confirmation to the theory that a luetic condition is at the bottom of the difficulty.

Case 10 is a baby three months old. It has always had enteritis with foul stools and kindred symptoms. It was fed on condensed milk and water, in what proportion we do not know; but in any event the diet was improper, and that has caused its present condition. We have given it bismuth and other medicines, with very little result. It is now taking white of egg and barley water. In such a case as this we cannot hope for much, as an enteritis which has continued so long gives rise to ulceration and produces the gradual emaciation which we have observed. Four or five irrigations of the intestines have been given, but they have only been partially successful in removing symptoms.

FRACTURES OF THE CLAVICLE.[1]

BY CARTER S. COLE, M.D.,

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The choice of a subject that might prove of interest to this well informed body is nothing compared to the difficulty of presenting whatever might be selected in a way that could add to your information or increase your usefulness. When the subject appealed to one of your number as being of sufficient importance, it was a pleasure to promise to do the best in my power to add, perhaps, one to the many useful methods which have so long been followed in the management of injuries of this unlucky bone.

A review of the anatomy is unnecessary except to remind you of the irregular shape of the bone, of its arbitrary division into thirds (of two inches each), of the attachment of the outer flattened portion of the deltoid and trapezius muscles and the coracoclavicular ligament, the inner edge of which passes the line of division between the outer and middle third. The division between the inner and middle third corresponds to the point where the clavicle crosses the lower edge of the first rib. The sternoclavicular and the costoclavicular ligaments bind the inner third to the cartilage of the first rib. The sternocleidomastoid muscle is attached to the upper and the pectoralis major to the lower border. The usual deformity in fractures which are the most common, involving the outer portion of the middle third, consists of a falling forward, downward, and inward of the outer fragment, with occasionally a marked upward tendency of the inner fragment, especially if the fracture is very oblique.

All possible fractures of a long bone are to be found in the clavicle, and in unusual cases we must follow unusual methods to get the best results. For example, in a multiple compound fracture we might find that by some direct method of fixation of the fragments, wire (less to be preferred than any), silkworm-gut, kangaroo tendon, catgut, or even silver plates, we could alone restore and keep the parts in satisfactory approximation. We might find it necessary to remove completely a detached fragment which could not be so adjusted as to insure its vitality. Of the unusual complications, injuries of the vessels, nerves, and lungs, it is not my purpose to speak, except to remind you that they are rare and must be met as the injury demands. In cases of extensive emphysema, compres-

[1] Read before the Passaic, N. J. City Medical Society.

sion, with an incision if necessary, offers considerable hope. In cases of injuries to the vessels immediate operative relief gives the best chance for life. In cases of injury to the nerves the restoration of the fragments by whatever means may be necessary is the key-note to the procedure.

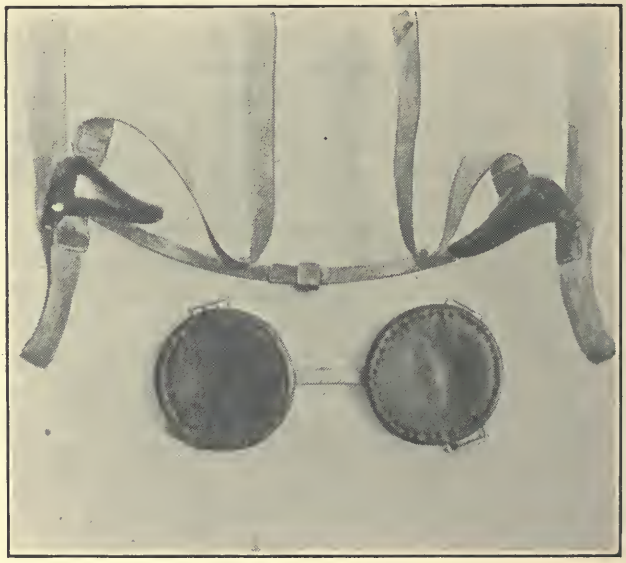
The simplest form of fracture, the subperiosteal without displacement, will usually get well without treatment; indeed, in the absence of a careful examination it is apt to escape attention. The transverse fracture with little or no displacement is also a comparatively easy form to handle, simple fixation of the shoulder by any convenient means giving a satisfactory result.

The most frequent fracture is oblique, is in the outer portion of the middle third, and does not readily stay reduced by any of the means which we have heretofore employed; indeed, it is often extremely difficult even to get the fragments into fairly good approximation. In very young children one of the most satisfactory dressings has been a double figure-of-eight bandage, over and under the shoulders and tied in the back. Gauze liberally padded with absorbent cotton making a sausage bandage is best adapted to the purpose. Sometimes in adults the same dressing may suffice. Of the axillary pads there is not much to say except that all are uncertain and unsatisfactory. A dress shield filled with cotton, the lower borders being sewed together and the whole held in place by a tape over the shoulder, may assist in raising the shoulder or in making abduction in certain cases, but it has seldom been possible to feel that the axillary pad really added materially to the treatment of such cases.

Of the many bandages devised for such injuries few survive; Velpeau's was long ago discarded; Wilkins's was perhaps the most satisfactory: it began on the well shoulder, went over the front of the elbow-joint of the affected side, then around the elbow and over the injured clavicle, and then twice around the body to the point of starting, the same repeated until the shoulder was covered. The Stimson bandage for dislocation of the outer end of the clavicle is also very satisfactory for fracture of the outer end between the conoid and trapezoid ligaments. It consists of a broad strip of rubber adhesive plaster which crosses over the affected shoulder after enveloping the front and rear of the arm of the injured side. This same bandage in muslin continued around the body is in certain cases quite as satisfactory as any that has been employed. But this subject would hardly have been worth considering if we were simply to restate the many unsatisfactory bandages and braces that

we have so long employed. All bandages restrain, fret, chafe, slip, and otherwise annoy. Not a single one really keeps the shoulder upward, backward, outward. The fact that somebody yearly devises a new one makes it certain that we have yet to find one that is satisfactory, and this is why some years ago it seemed to me that we were working along the wrong lines in the solution of the problem.

The use of a part of Dr. Taylor's spinal apparatus as a clavicle splint directed my attention to the desirability of a splint specially designed for fractures of the clavicle. After two years' trial and



use of the one here presented, I can confidently commend its use in the many cases which do not demand operative interference. Even in them it will prove a valuable adjunct in the subsequent care of the case. It consists of two infraclavicular pads, specially designed to fit that space and support the clavicle, joined by two steel bands so arranged as to be lengthened or shortened as the case may require. It is in effect the adjustment of a false clavicle. Their fixation to a pad over either scapula (these pads being united by an adjustable steel strip), by bands passing over and under the shoulders, supports the broken and sound bones, and pushes the shoulder backward. The thumb-screws on the pads enable the surgeon to change the direction of the support as the individual case

requires. The comparative freedom of both arms (although the arm of the injured side should be carried in a sling) furnishes a desideratum which no previous dressing has provided. The Sayre strip which has been so extensively used is a source of irritation in many cases, and cannot be used at all in a child. The Fox dressing involves too much padding and is cumbersome. The Pappini brace, which I have never seen, seems to have had the same purpose in view as the splint I offer, but the apparatus, judging from the description, must have been unwieldly. Moore's double figure-of-eight including the elbow of the affected side is an ingenious band-

age method which should not be forgotten. If the crutch here offered proves as useful in the hands of others as it has in my own practice we shall have entered upon a new era in the treatment of the ordinary fracture of the clavicle, as we shall for the first time have a comfortable, sufficient support with a reasonable expectation of a good result. We should ever remember a statement of Stimson:[1] "It is very apparent upon examination of the history of this subject that while many different dressings may give good results in certain cases, none can be depended upon to do so in all, and that the displacement, the shortening, which is the rule, is the result in some cases of forces which cannot

[1] A Treatise on Fractures. By L. A. Stimson. H. C. Lea's Son & Co., 1883, p. 343.

be effectually controlled, of the obliquity of the fracture, and not infrequently of the indocility of the patient, who, finding himself incommoded by the dressing, shifts it slightly but often until he obtains ease at the sacrifice of the object it was applied to secure."

The details of the treatment are exceedingly simple. The clavicle crutch is properly and securely adjusted. The arm of the affected side is put in a sling, and the patient is instructed not to expose himself to the possibility of fresh traumatisms. Readjustment may be necessary for a few days, consisting for the most part of a simple tightening of the straps which pass over and under the shoulders. The period of treatment varies according to age. In young children three or four weeks will suffice, while in adults five or six weeks will be found necessary. It must be recalled that some form of extra force may be requisite at the outset in order to bring the bones into line. For example, placing the knee between the shoulders and drawing firmly backward will often overcome a considerable displacement of the broken fragments. Again, traction outward and upward of the shoulder on the affected side will frequently suffice to give good coaptation. In certain cases pressure upon the bone itself may be necessary to bring the parts into position. The axillary fold may in certain cases need protection by cotton or otherwise on account of the pressure of the strap. Again, if the strap becomes narrowed or wrinkled, a new one can easily be substituted.

Do not think that the splints can effect coaptation in a case in which we are unable to reduce by our own muscular efforts. In short, there are certain cases of unusual fracture and of considerable deformity which, as we have before intimated, can only be relieved by an operation, and it would be folly to expect to relieve such cases as these by any form of splint or bandage. On the other hand, do not overlook the value of the crutch in the operative cases in steadying and holding the parts in a comfortable position, after this position has been secured by appropriate means.

As in all other fractures the mechanical ingenuity of the surgeon is almost as important a factor in bringing about a good result as the obedience of the patient. In the case of children the parents must be cautioned to keep a close watch over the injured parts, as well as to observe and report any displacement of the apparatus. We cannot hope to obtain perfect results in all cases; but we can get good results and with less inconvenience to our patient by means of the simple apparatus herein described than by any other means at present within our knowledge.

REMOVING THE EYEBALL: A DISCUSSION OF SOME METHODS.[1]

BY FRANK ALLPORT, M.D., CHICAGO, ILL.,

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We have for our clinic this afternoon three cases necessitating the removal of an eyeball. Their pathological conditions enable us to demonstrate three different methods for the evacuation of the orbital cavity. The removal of an eye causes a great deformity at best, and surgeons should not fail to mitigate the misfortune as far as circumstances allow. To this end various departures of a more or less radical nature from the old classical enucleation operation have been made, all tending toward the preservation of orbital tissue, and the development of a movable stump.

It is impossible in the time allotted to enter into a discussion as to the necessary indications for the removal of an eyeball; neither is it necessary, as these matters have been fully treated in previous lectures. I desire to demonstrate a few of the best methods of eyeball removals, or substitutes, which, while eliminating dangerous pathological tissue, will at the same time retain healthy tissue, and produce a desirable stump for cosmetic purposes.

The first patient, an old gentleman nearly 90 years of age, lives at Arcola, Ill., and was brought by Dr. John Polk, of that city. For many years he has suffered from chronic trachoma with eversion of the lower lids, and has been practically unable to use his eyes, owing to their diseased and irritable condition. The displacement of the opening of the tear duct prevents proper drainage, and his cheeks are consequently more or less bathed with tears, mixed with the septic discharge from the trachomatous lids, which accounts for the excoriated and eczematous condition of the cheek which you observe. The everted lid with exposed conjunctiva also furnishes an excellent resting-place for foreign bodies, thus aggravating an already annoying and painful condition. One of these foreign bodies became lodged in the cornea of the right eye, penetrating the corneal epithelium. Ordinarily this little accident is followed by no unfortunate results, as the epithelium quickly reforms, and healing occurs. In this case, after the foreign body disappeared the more vulnerable corneal coats, beneath the epithelium, were freely exposed to the septic conjunctival and lacrimal discharge, and ulcer-

[1] A clinical lecture at St. Luke's Hospital, Chicago, October, 1900.

ation rapidly followed. The old and enfeebled condition of the patient presented little or no barrier to tissue degeneration, and the cornea, which as you know is but poorly supplied with blood-vessels, soon became necrotic, pus accumulated in the anterior chamber, and the eye was hopelessly lost. This is the condition in which we find him to-day; and I have advised enucleation to save suffering and danger to the other eye, and even to life itself, for such eyes are sometimes a source of infective meningitis, and death.

We are now at a point where we must choose our operation. Shall we perform a complete eyeball enucleation, or shall we substitute one of the modern operations striving to obtain the best cosmetic results? I have decided in favor of the first procedure for reasons which I am sure will commend themselves to your judgment, when they are briefly enumerated. In the first place he is aged, his race is almost run, and his personal appearance is no longer of great importance either to himself or his friends. Besides this he is feeble, and it is a question whether he can sustain the administration of a general anesthetic at all. The eye must, however, be removed, and we are compelled to assume the risk of general anesthesia, but we must keep him under its influence for the briefest possible time, and as a simple enucleation is the shortest operation, we have decided in its favor. Another cause for this decision is the fact that at his age, and under his method of living, which is that of a quiet retired family existence in a small town, it is altogether unlikely that he would wear an artificial eye, even if he had the most improved socket foundation on which to place it. And finally, the eversion of the lower lid is incompatible with a firm position, necessary to the comfortable and satisfactory wearing of an artificial eye; it would easily slip from its place, and would be constantly covered with dried and repulsive looking discharges from the diseased conjunctiva. This case involves most of the reasons for the performance of simple enucleation. This operation is advisable in cases of probable litigation: for instance, a railway employee who has been injured during service, where the indications point toward a suit for injury; or, if the surgeon is called to remove an eye in an individual whom he fears might make him trouble. Under such circumstances the simple operation is the best, recovery is quicker and less complicated, and a surgeon would be less likely to be accused of leaning toward experimentation, or of performing operations that are likely to be followed by sympathetic ophthalmia and meningitis. There can be no question of one thing, viz.: the

simple enucleation operation, while it produces the most extensive deformity, is at the same time the easiest to perform, and the safest to all parties concerned. I think it is also the best operation where orbital injury is very extensive, or where we desire to thoroughly clean out the orbit, as in tumor or orbital abscess, or perhaps even in panophthalmitis, or a general intra-ocular suppuration. In the latter condition the removal of the eyeball at all must be carefully considered, as it is not impossible that infection may pass into the cut optic nerve and invade the meninges, with disastrous results. Some operators are distinctly opposed to a removal under these circumstances, and treat such eyeballs or sockets as they would an abscess, by incision and drainage. I have never seen such unfortunate results, and have no dread of them; still I cannot afford to ignore the opinions of others, and always try to give them proper weight.

Having thus considered most of the reasons for the performance of the simple enucleation, which may be variously applied in other cases, let us now turn our attention to its different steps. After the insertion of a strong eye speculum, holding the lids firmly apart, the conjunctiva is grasped near the periphery of the cornea at any convenient place, and an opening is made with a pair of curved blunt-pointed scissors. This opening is continued around the cornea until it is completed. The underlying tissues are severed at all points by the scissors, to enable us to pick up and cut the four recti muscles close to their scleral attachments. I would advise you to sever the superior rectus muscle first, as the eye naturally turns up during anesthesia, and if muscles which antagonize the superior rectus are severed first the upward movement is accentuated, and the muscle is then difficult to reach. The superior rectus is first pulled down by a tenotomy hook, exposed and severed, after which the other recti muscles are severed. We do not attempt to find the oblique muscles, as they do not interfere with the expulsion of the globe, and are easily severed, together with the other loose tissue back of the eyeball. After incising the recti muscles the speculum is forced back into the socket, which crowds the eyeball forward, thus enabling us to easily find the optic nerve, which is now the only thing that firmly holds the globe in position. In searching for the optic nerve it is best to proceed from the nasal side of the socket, as it is more readily reached at this point; the two nerves originate at the central optic chiasm and gradually diverge as they pass forward to the eyeballs; thus the nerves are nearer the nasal than the temporal sides of the sockets. The eye should now be firmly

grasped by a pair of strong forceps and pulled outward toward the temple, to bring the optic nerve forward as far as possible. An enucleation spoon is passed back into the socket, using the sclera as a guide, and the nerve engaged in the slot in the spoon. This instrument is shaped something like a spoon with the point ground off, and possesses a wide slot through its center which easily accommodates the optic nerve. By cutting the nerve back of the spoon we avoid cutting the sclera, an embarrassing accident which materially hampers the operation by evacuating the vitreous humor and collapsing the globe. After the nerve is engaged a strong pair of curved blunt scissors is introduced close to the sclera, the globe lifted out as far as possible with the spoon, and the nerve severed as far back as possible. The eyeball is then brought forward and all loose tissue, including the two oblique muscles, severed close to the globe, to preserve as much orbital tissue as possible. Some operators catch up the incised conjunctival circle with a purse-string suture, others find the muscles and include them in the sutures, together with the conjunctiva, while others leave the open wound to heal by granulation. If there is no pus in the socket, either of the two former procedures is advisable, as the healing is quicker and more stump mobility is produced; but if pus has been in the socket, it is better to dispense with the sutures. The sutures may be catgut, which need not be removed, or silk, which must be removed in four or five days. After cleaning the parts a bandage is applied, and the patient kept quiet for three or four days, the bandage being changed each day and the socket thoroughly cleansed. The patient is usually discharged in about ten days.

It must not be supposed, however, that all enucleation operations can be performed after the ideal method just described. Various complications may embarrass the operation. The eyeball may collapse during the course of the operation owing to deep corneal ulceration, or a partially healed wound of the eyeball. Under such circumstances we must adhere to the essential steps of the operation as nearly as possible, picking up the collapsed sclera with strong forceps and stretching it firmly, to clearly display the site of each operative step; the globe must not be mangled, which would prove an additional embarrassment. Some operators under these circumstances transfix the eyeball with a strong, sharp hook and pull the globe out as far from the socket as the optic nerve will allow, and from side to side, as is necessary to facilitate the different steps of the operation. Others transfix the globe with a strong suture, with which to pull the eye from place to

place; while others, who anticipate trouble of this nature, strengthen the weak spot in the eye by including it in a firmly tied suture before attempting the enucleation. The globe may be extensively cut or torn before the operation, with a complete collapse of the globe, rendering the work of its removal embarrassing. The same general directions as have been just given are applicable in such cases, only the difficulties are increased. The principal difficulty is in severing the hidden optic nerve without freely lacerating the globe or surrounding orbital tissue. This difficulty may be overcome by care and coolness, and by firmly pulling the collapsed eyeball away from the socket, and rotating it to one side so as to see as far back in the socket as possible, which procedure will often be rewarded by a fairly good view of the nerve itself, which will of course render further progress comparatively easy. Keep close to the sclera, using it as a guide, and employ the scissors in dissection.

Hemorrhage sometimes, though rarely, causes trouble. In exceptional instances it may even be necessary to tie an artery, although this has never occurred to me personally; indeed, in a somewhat extensive experience I have only once seen hemorrhage which caused me a moment's anxiety. In case free bleeding occurs, it may usually be controlled by hot bichloride solution, or sterile suprarenal capsule solution or powder.

Our next case is that of a man in middle life who came to the hospital yesterday, and was placed on my service. From some unknown cause he has an infected corneal ulcer, involving about one-half of the corneal tissue, and extending deeply into its layers. Pus has drained through into the anterior chamber, producing a hypopyon. An examination by oblique illumination shows the iris to be inflamed and already adherent to the capsule of the lens, forming posterior adhesions, a condition nicely shown by atropine in this case. The eye is badly inflamed, tender to the touch, and very painful. Its condition is such as to render any practical relief, either as to pain, vision, or appearance, improbable by any treatment or operation, and I have therefore advised removal, a suggestion which he eagerly accepts. The patient is in middle life, and while a laboring man, and his personal appearance not of paramount importance to him, still this element is not to be ignored. While we do not elect to perform a Mules operation, neither would it be considerate to perform the old enucleation operation, as we did in the previous case, where age, physical infirmities, and other considerations already mentioned, warranted us in performing an operation

which, although it produced the maximum amount of deformity, possesses valuable advantages, clearly indicating its use.

In this case then I will perform an operation originally described by Soker and later modified by myself, which I consider the best enucleation operation with which I am acquainted. The conjunctiva is divided around the cornea, and as close to the corneal edge as possible, with a pair of curved blunt scissors. The conjunctiva is then raised at different points with forceps, and the scissors are used to freely separate the conjunctiva and capsule of Tenon from the globe. Commencing with the superior rectus, the rectus tendons are picked up upon a strabismus hook. Prince's advancement forceps are then substituted for the hook, which is removed, and made to firmly hold the entire tendon within its grasp, by closing the fixation spring. The tendon is then cut close to the globe, and any posterior connections between the muscle and globe are likewise severed, so as to allow of free expulsion of the globe and a perfectly loose muscle. A needle and catgut suture are then passed in and out through the muscle tissue, at right angles to its fibers, the needle is removed, and the two catgut ends are allowed to hang until we wish to again pick up the muscle. The forceps are then removed. This procedure is repeated with all four recti muscles, after which the globe is removed as in the ordinary enucleation operation, the spoon and heavy curved scissors being accurately introduced between the globe and the muscles, when the optic nerve is to be severed, being very careful not to cut or injure the muscles during the manipulations. The hemorrhage stopped, the superior and inferior recti muscles are then picked up by the double-headed catgut sutures, brought together and firmly tied, and the loose ends of the sutures cut away. The same is done to the internal recti muscles. The conjunctiva is then picked up and quilted in and out by a needle and catgut suture a few millimeters from its circular cut edge, being careful to dip down and pick up each rectus muscle as it is passed. The suture is then tied and cut. The reaction is usually slight, and easily controlled, if necessary, by iced bichloride solution. The patient should remain in the hospital for about two weeks. This operation makes a movable stump upon which an artificial eye may rest. The socket is well filled, and comparatively little sinking of the lids is observable. Many operators believe that this or some other similar operation supplemented by improved artificial eyes, such as Snellen's, with thick bulging or convexed backs to fill in the cavity and produce close contact with the mobile stump, is destined to become the ideal method, and will entirely supplant all such pro-

cedures as Mules's and other similar operations. If this happy result ever materializes better operations and better artificial eyes will have to be devised, although the operation just described yields desirable stumps.

Our last case is that of a young woman about 30 years of age. She is a woman evidently quite particular about her personal appearance. Some years ago she received a severe blow upon the left eye, which after numerous inflammatory attacks, the nature of which it is impossible to ascertain, resulted in an atrophy of the globe, and cataract. The cataractous lens has that peculiar white glistening appearance so common in calcareous degeneration, and I will venture the opinion that we shall find the lens and choroid thus degenerated when the eye is removed; this opinion is strengthened by the stony hardness of the globe.[1]

Besides being a deformity the eye is constantly inflamed and painful, and may be regarded as a menace to the other eye. An eye is only useful for two purposes, viz., for personal appearance and for vision. When both these uses are lost, and when in addition an eye is painful and dangerous, it had better be removed. This course I have advised in this case, and the patient has consented.

I have determined to perform a Mules operation in this case, because I believe that this procedure produces less deformity than any other for the removal of an eyeball, an opinion based not only upon the experience of others, but also upon my own twenty-seven cases, all of which have been satisfactory.

The complete extirpation of an eyeball, with collapse of the orbital tissue and loss of muscular power, is a deformity, and one which surgical invention has endeavored to overcome. Amongst other methods intended to alleviate this misfortune is one called "evisceration of the eye." This consists in amputating the anterior portion of the eye including the cornea, completely eviscerating the globular contents, and then suturing the scleral and conjunctival wound. This operation you will observe does not touch the muscles, the object being to leave a prominent movable stump. It was at one time quite popular, as the cosmetic effect was frequently good, but as reports of subsequent sympathetic ophthalmia materialized evisceration was regarded as an unsafe procedure, and now it has almost fallen into disuse. The evolution from this operation has been the procedure devised by Mr. Mules, of England, from whom

[1] The lens and the choroid were both found to be calcareous. The opening in the posterior portion of the choroidal shell beautifully showed the aperture through which passed the fibers of the optic nerve on their way to the interior of the globe.

its name was taken. The idea of the operation is to preserve the muscles and sclera intact, and by placing a hollow glass globe or artificial vitreous inside of the sclera permanently retain it there, producing a globular, prominent stump, that will not allow of the shrinking and pinching of the sclera incident to an ordinary evisceration, which is thought to be largely responsible for the occurrence of sympathetic ophthalmia. The operation is performed as follows:

The ordinary circumcorneal incision of the conjunctiva is first made by the curved scissors, and the conjunctiva freely liberated from the sclera for a considerable distance back, in order to provide for a movable conjunctival flap. The anterior segment of the eye just back of the cornea, and well into the scleral tissue, is now transfixed by a Beers' or Graefe's cataract knife, or by any other suitable blade. The incision is completed upward or downward as the surgeon prefers, thus opening one-half of the anterior segment of the eyeball. The other half is now picked up with forceps and cut off by scissors, thus completely amputating the cornea. This leaves a large round opening in the eye, through which we remove the contents down to the sclera. This is done by a sharp scoop, aided from time to time by a mop of either gauze or cotton firmly twisted on a strong cotton-holder forceps or probe. I say strong, because this cleansing process should be thoroughly done, using more or less force, the object being to leave no fragments of choroid or anything else attached to the inside of the sclera. Troublesome hemorrhage sometimes occurs during the curetting process, which may usually be controlled by a hot bichloride solution. After the hemorrhage has practically ceased the sclera should be prepared for the glass globe by mopping it out with a 95-per-cent solution of carbolic acid, after the method of Dr. A. E. Prince, of Springfield, Ill. The acid may be immediately neutralized by alcohol, although many surgeons omit the latter. In order to make the mouth of the scleral wound coapt evenly, a little wedge-shaped piece may be taken out at two opposite points. This enlargement of the circular aperture also permits of a readier introduction of a suitable sized glass ball. Six or eight hollow balls of various sizes should always be on hand at the operation. They should be sterilized by immersion in 95-per-cent solution of carbolic acid and alcohol, and are then allowed to float in a strong bichloride solution (1: 1000) in a covered bowl until ready for use. The original hollow glass globes devised by Mr. Mules are still popular, although various substitutes have been proposed. The glass globes, when well made, are smooth, light,

permanent, and strong, important features in such a device. Some surgeons have objected to them, fearing their easy breakage by blows, etc. I will drop this ball upon the stone floor, and you will observe that it bounds again and again, and is not broken. I therefore regard their breakage in the cushioned socket as almost impossible, and I have never heard of a case where this accident occurred.

Aluminum globes have been proposed, and Dr. M. Black, of Denver, Colorado, has claimed much for his perforated aluminum globe, which allows the newly formed tissue to pass into the perforations and thus firmly attach the shell and ocular remnants together in one mass, a condition not entirely commendable, as evidenced by a case of Dr. W. F. Coleman, of Chicago, Ill., who used one of these shells, which became thoroughly softened and degenerated, and created such inflammation as to require the excision of the entire mass. I think similar accidents have occurred with several surgeons, and the aluminum globe has fallen into deserved disuse. Dr. L. Webster Fox, of Philadelphia, Pa., has used gold globes for the last year or two, and thus far reports good results. I have never deserted the glass globes, and shall continue their use until convinced of the superiority of some other material.

Great care should be used in the selection of a globe of proper size, bearing in mind that considerable reaction and swelling usually follow the operation, and that if the artificial vitreous is unduly large the sutures may give way and the globe be expelled, or it may become necessary, through excessive swelling and pain, to liberate the sutures and globe to relieve suffering and avert danger. Neither should we select a ball too small, because we desire to insert a globe sufficiently large to loosely fill the scleral sac, so that a prominent stump may be produced, capable of tolerably well filling the socket, and supporting the artificial eye to be later inserted. We should choose between two extremes, and select a ball that readily slips into its place, allows ample scleral tissue for sutures, and permits the sclera to lie loosely around the glass shell.

Having selected the ball, it is taken from the antiseptic fluid, washing it thoroughly meanwhile, and placed in the scleral sac with the fingers, or an instrument especially devised for this purpose. The sclera should then be temporarily drawn over it, to ascertain if it is of the proper size; if not exchanges should be made until a satisfactory ball is found. The scleral sac and its glass contents are now thoroughly irrigated by a bichloride solution 1:5000, the opening in the sclera being expanded to permit free ingress of the fluid. The scleral opening is now brought together with strong but

fine twisted black silk thread. Catgut sutures should not be used, as they are quickly absorbed and allow an expulsion of the ball. Black thread is better than white for obvious reasons. The scleral opening may be sutured either horizontally or vertically; the choice is immaterial, but I usually elect the vertical meridian and shall do so in this case. The sutures should be set well back into the scleral tissue, so that a firm hold may be obtained, this being a material aid in retaining the ball, in spite of the subsequent reaction. To the same end as many sutures should be inserted as can be conveniently placed in the opening. In twenty-seven cases I have never lost a ball, and I attribute my success to a rigid adherence to the last enumerated suggestions.[1]

The sutures are cut off as close to the knot as is consistent with safety; these sutures are permanent, and they should therefore be made as small and unirritating as possible. The conjunctival sutures are now inserted in the opposite direction from the scleral sutures—that is, if the latter have been placed horizontally, the former should be placed vertically, etc. The conjunctival sutures may be of silk or catgut, and five or six are usually sufficient. They should be placed far back in the conjunctiva, in order to encourage a thorough healing at the central point, which is apt to be open and expose the sclera, unless care is taken. This has hitherto been the weakest spot in my operations, and I have been unable to provide against it; nevertheless no serious consequences have ensued, although the possibility of scleral stitch infection is manifest when such sutures appear through an open conjunctival aperture. Transplantation of mucous tissue over the opening, either free or pedunculated, may solve the problem, and I intend trying it on my next case where the conjunctival aperture appears, first waiting until the maximum opening has developed.[2] If the sutures are silk, which I regard as best, they may be carefully cut away in six or seven days; if catgut, they will take care of themselves. The socket should now be thoroughly irrigated with bichloride solution 1:5000, a pad of cot-

[1] I regret to add that this very case proved my first failure, for the globe escaped in about four weeks, or rather it protruded and I delivered it, and sewed up the scleral sac, in the same manner as for an ordinary evisceration, with no apparent bad results. This case is noteworthy, for I think it teaches us that eyes containing calcareous lenses and choroids are unsuitable for the retention of a Mules globe, owing to secondary degeneration and fragility of the sclera. At the time of the first operation I noticed that my needles slipped through the sclera with unusual ease, and that the sclera tore rather easily, but never having met this complication I proceeded with the operation. When I came to deliver the ball and proceed as for an ordinary evisceration, the sclera was like paper and tore with such readiness that I was compelled to fortify the flaps by including the conjunctiva in the scleral sutures.

[2] I have since tried this with complete failure. The remedy lies in placing the conjunctival sutures *very* far back.

ton applied over the closed lids and secured by a bandage, and the patient kept quietly in bed for several days. Both eyes should be bandaged, in order to keep the operated eye quiet and free from rotation, which would strain the sutures. After three or four days the well eye may be liberated. The eye should be inspected and irrigated each day, and upon the appearance of undue reaction, iced bichloride compresses should be substituted for the bandage, except at night, when the latter may be resumed. The patient should be kept quiet and under close observation for about two weeks, after which our care may be gradually lessened.

I think it unwise to insert an artificial shell for one month at least, as its adjustment and wearing may irritate the stump and open the conjunctival wound. The patient should only wear it occasionally at first, gradually habituating the socket to the artificial prothesis. It is usually quite difficult to secure a suitable shell for a Mules stump, as artificial eyes are generally manufactured for the old-fashioned empty socket, and are quite unadaptable for the prominent stump of the operation just described. It is frequently necessary to have an eye manufactured to order. When a satisfactory eye is obtained, however, the appearance is lifelike. There is none of the sinking invariably present after the old operation, for the lids are well filled out and graceful in their outlines. The shell being brought in apposition to the mobile stump follows every movement of the other eye with promptness and accuracy. The continual overflow of tears and mucus, and the repulsive drying of the same upon the surface of the shell so uniform with the old operation, is absent after a Mules operation, as the prothesis is pushed forward by the retained glass ball and brought into close contact with the lids, which allows the secretions to pass over the shell in a natural manner into the lacrimal passages. In fact, the results are so satisfactory and lifelike that the patient really suffers very little if any deformity, and the surgeon who has once witnessed the undisguised pleasure of a few patients thus saved from lifelong mortification will find it difficult to accustom himself to other operations.

There are numerous other operations for enucleation or its substitution, but time forbids of their discussion, and you have seen enough, and I trust learned enough, to thoroughly equip you for the removal of an eyeball under any circumstances which you will be likely to encounter in general practice.

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BOOK REVIEWS.

PROGRESSIVE MEDICINE. Edited by Hobart Amory Hare, M.D., Assisted by H. R. M. Landis, M.D. Vol. II, June, 1901. Price, $2.50. Philadelphia and New York: Lea Brothers & Co.

The first 178 pages are contributed by William B. Coley on the surgery of the abdomen, including hernia. This excellent review of abdominal surgery shows that numerous advances have been made in the current year. Apparently but little has been added to our knowledge of the surgery of the appendix, for but a few pages are devoted to it. In diffuse suppurative peritonitis the returns so far show favorable results in its surgical treatment. The statistics of Krogins, giving results in 680 cases of general peritonitis treated by operation, show that there was a percentage of recoveries of 28.5. The anatomy of the cæcum and appendix, with bacteriological investigations in inflammation of these structures, is referred to.

Keen's operation of ligation of the abdominal aorta, together with the thirteen cases that had previously been operated, shows that it is scarcely justified, as even in the favorable cases life was only prolonged a short time. It is possible that Keen's proposed clamp for occluding the aorta without cutting through its walls may change the results in this severe operation. That there is a reappearance of the collateral circulation is attested by the few cases in which life has been prolonged from ten to forty days after the operation.

In the surgery of the intestines, Lee's new intestine holder and Connell's suture, with the knots on the inside, are described. A careful discussion is found of the operation of the exclusion of the intestine, as advocated by Terrier and Gosset. The mortality of these variations is found to be only 15.38 per cent. The operation has been performed twenty-five times for fecal fistula or artificial anus. In most of the cases resection had been attempted, but had failed on account of extensive adhesions. While exclusion alone may not always cure fistula, it may render resection at a later period possible.

In cancer of the stomach the pessimistic views of Osler are quoted in reference to the medicinal treatment of this disease. Mayo Robson holds out for the surgical treatment, stating that the outcome is more favorable in operations for cancer upon the stomach than upon the breast or tongue. Robson thinks that we may hope to perform the radical operation on one out of four cases of cancer of the stomach, if surgical means are adopted sufficiently early. Exploratory operation is to be recommended in most cases, the incision being extended and a radical treatment undertaken if possible.

John G. Clark discusses the mortality in uterine cancer. The statistics of Winter are quoted. He has made a careful study of 308 cases in the University of Berlin. The conditions immediately after operation were carefully tabulated in reference to the sources of information, and show that 115 cases recurred within the first year, thirteen within the second, and thirteen within the third. The recurrences after the third year are rare, and are still more infrequent after the fifth year. The ultimate results in cancer of the cervix are much more serious than cancer of the fundus. The combined results in cancer of the cervix and of the fundus show that there is a recurrence in 67 per cent, and in only 33 per cent was the patient free for five years. The influence of early

operation is shown in the statistics of different surgeons. Thus, one surgeon who operates upon every case in which it is possible to do so shows a much larger proportion of recurrence than those who chance only selected and favorable cases.

Alfred Stengel writes on diseases of the blood and ductless glands. This chapter shows that the amount of work done upon the blood is still considerable, and many mooted points are still unsettled. Thus pernicious anemia presents, as to its nature and diagnosis, wide differences of opinion. Chlorosis is still of doubtful origin; some of the older theories have been disproved, but later views have not been confirmed. Leukemia is found to be a much more frequent disease than was formerly believed. It is gratifying that among the uncertainties of opinion diabetes mellitus is at last determined to be primarily a disorder of the carbohydrate metabolism. "The ingested carbohydrates are for the most part absorbed as dextrose, converted into glycogen in the liver stored in the muscles, and delivered to the blood in small quantities from time to time, or in greater quantities in case of need. When, for some reason, the blood becomes surcharged with sugar, either directly or from these storehouses, excretion takes place through the kidneys and glycosuria is recognized." Exactly why the blood does become surcharged with the sugar is something on which we should like information. This, unfortunately, the abundant literature of the last year does not afford.

Edward Jackson contributes the closing chapter on ophthalmology.

CLINICAL PATHOLOGY OF THE BLOOD. By James Ewing, A.M., M.D. Philadelphia and New York: Lea Brothers & Co. 1901.

Of all the recent text-books upon the pathology of the blood, this is one of the clearest, most lucid, and most practical for the clinical worker in hematology. The writer starts with a brief description of the tests for blood and the methods of estimating the proportion of red and white cells. He says that the value of the hematokrit in estimating the character and severity of anemia has not yet been given the attention it deserves, more value being given to the number of red cells than to their capacity. All the usual methods of demonstrating the specific gravity of the blood, its alkalinity, and other of the more generally applicable clinical tests, are given.

Chapter II deals with the chemistry of the blood and the chemical composition of the leucocytes.

Chapter III deals with the morphology and physiology of the red cells, which includes their staining reactions and also the effect of various diseases, as well as therapeutic measures upon the character of the cells. The leucocytes and leucocytosis form a separate chapter, the writer giving about all that is definitely known of the clinical value of leucocytosis; it contains a discussion of the still unsettled theories regarding the production of an increased number of leucocytes in the blood.

Chlorosis is said to be a primary anemia, occurring almost exclusively in young women, rarely in young men, resulting from defective hematogenesis and affecting primarily the hemoglobin, but secondarily the number of red cells. The author discusses the various theories of the origin of chlorosis and comes to the conclusion that two factors are almost invariably present: (1) a predisposition; (2) defective absorption of iron from the food. We are told that pernicious anemia differs from secondary anemia in the peculiar

changes in the red cells, in the lesions of the marrow, and in its tendency when once established to progress to a fatal issue. In addition the anemia is apparently out of proportion to the exciting cause, while often no cause whatever can be assigned. That a pernicious anemia may not always be primary is shown from the fact that it is sometimes due to intestinal parasites. In the writer's opinion the term should be applied to all forms of grave anemia showing an excess of megaloblasts over normoblasts, or where the total number of megalocytes rises to 33 per cent. The most of the cases are to be referred to a cryptogenic origin, but a few may come from intestinal parasites. The leukemias are given an extended description, as well as the condition of the blood in various diseases, constitutional and acute. The author recommends Jenner's method of fixing and staining the blood. The method of preparing the stain is given, and it is stated that the powder or fluid dye may now be obtained already prepared from dealers.

ECZEMA. By L. Duncan Bulkley, A.M., M.D. Price, $1.25. New York and London: G. P. Putnam's Sons. 1901.

This work is based on an analysis of 8000 cases of eczema, and has been prepared to facilitate the recognition and successful treatment of the disease. It is largely founded on a former work, "Eczema and its Management," but is essentially a new book, entirely rewritten, with many additions. In the definition of eczema the writer says it is "an acute or chronic non-contagious, inflammatory, polymorphous, constitutional disease of the skin, accompanied by itching and burning." From the standpoint of the dermatologist this may seem to be a sound definition, but to those not specially versed in the intricacies of that specialty it would seem as if the above definition fails in one of the chief aims, namely, that it does not define. All of these characteristics occur in diseases which are clearly not eczema. In view of the exhaustive discussion at the International Medical Congress on the parasitic nature of eczema, the author is going far in declaring it non-contagious—at least in all its varieties.

Eczema forms about 30 per cent of all skin diseases, and is almost equally divided between the two sexes. It is frequent in infancy and perhaps more common in adult life, the number of cases decreasing as age advances. The writer makes a distinction between dermatitis, which rises from a variety of causes, and the disease eczema, which is a constitutional and not a local disorder. If we turn to the causes of eczema we find a compact table covering about two pages, which divides them into two great groups: "First, the predisposing, which are divided into three subclasses—the inherited, acquired, and accidental conditions. The exciting causes are divided into external and internal. Thus, among external causes, we have chemical irritants, which include dyes, poison ivy, scratching, and constriction. We confess we do not understand why such causes are not quite as competent to produce a local dermatitis as they are the constitutional disease, eczema.

The eczema of the different parts of the body is discussed at length, together with the special treatment applicable to different regions. In the treatment of general eczema diet and hygiene are extolled. The therapeutics of eczema are comprised in a number of excellent lotions and ointments applicable to the disease. We nowhere note a reference to the uricacidemia theory of the origin of eczema, and this convenient and ever misleading theory is happily relegated to the rear.

THE HYGIENE OF TRANSMISSIBLE DISEASES. By A. C. Abbott, M.D. Second Edition, Revised and Enlarged. Price, $2.50. Philadelphia and London: W. B. Saunders & Co. 1901.

The first edition of Dr. Abbott's Hygiene was favorably reviewed in the pages of MEDICINE, an opinion which must be repeated regarding the second edition of the work. It has not been increased in size, but remains the same compact, readable handbook. This, we think, is a distinct advantage, and one in which writers frequently err, as it is natural for an author to aim at a greater degree of completeness in subsequent editions. In this way books are often made too large to be practically useful to the student. In the description of typhoid fever the author says that there is no proof that it is ever contagious, in the sense that it is transmitted by the atmosphere from one patient to another. The infection comes only through the alimentary tract, resulting from actually swallowing materials that have come directly or indirectly from the bowels of individuals affected with the disease. If to this the writer had added the urine as a transmitter of the affection, he would have added to its completeness. A number of typical epidemics of typhoid are given, illustrated by maps. The similarity of cholera to typhoid as a water-borne disease is shown. The portals of infection in pulmonary tuberculosis are given as the lungs and alimentary tract and wounds of the skin. It is evident that the author leans strongly to the view of the contagiousness of tuberculosis, as he says that every individual affected with the disease is a source of danger, though full weight is given to the diminished resistance on the part of the individual and hereditary influence.

The poverty of our knowledge on the subject of acute croupous pneumonia is shown by the very brief chapter devoted to this fatal disease, in every department of which is shown the indefiniteness of our knowledge regarding its nature, its method of dissemination, and its prophylaxis.

In discussing bubonic plague, opinions are divided as to whether the contagion is disseminated through the air or spread by infected clothing. The statement is made that it seems most often to be disseminated by human beings. In view of the recent discoveries regarding the spread of malaria and yellow fever by mosquitoes, it is probable that some parasite will be found to be the conveyer of this infection.

In the discussion of the precautions to be used in the prevention of communicable diseases, the most approved modern methods are described.

ANATOMICAL OUTLINES OF OBSTETRICS. With Special Reference to Diagnosis and Treatment. By Dr. Oskar Schaeffer. Edited by J. Clifton Edgar, A.M., M.D. Price, $3.00. Philadelphia and London: W. B. Saunders & Co.

OUTLINES AND EPITOME OF LABOR AND OPERATIVE OBSTETRICS. By Dr. Oskar Schaeffer. Edited by J. Clifton Edgar, A.M., M.D. Price, $2.00. Philadelphia and London: W. B. Saunders & Co. 1901.

These companion volumes have recently been issued as a part of Saunders's Hand Atlases, to which frequent reference has been made in these pages.

The Outlines of Obstetrics is a splendid reproduction of colored plates, in which the relation of parts and the natural tint of the tissues is preserved. In all, there are 122 photographs, 56 lithographic plates, and 38 other illustrations. The present volume treats only of obstetrics, and will be found valuable for the

student, if used in conjunction with a larger treatise. The demands of the practical and clinical side of obstetrics are held uppermost in the preparation of the volume, and these appear in large type. Pathology and explanatory data, as well as anatomical and histological detail, are printed in small type and single-leaded. This facilitates reference and also makes the volume of more value to the undergraduate.

In Labor and Operative Obstetrics the writers have endeavored to supply some of the deficiencies in our teaching, necessarily due to the inherent difficulty surrounding these subjects. Gynecological operations admit of considerable demonstration, as the hour of operating can be chosen, and with the aid of the Trendelenburg position and the electric light every step of the operation can be demonstrated. Not so in labor; its complications and operations occur at most inopportune times, and under circumstances which do not lend themselves to class-room demonstration. In this volume there are fourteen lithographic plates in colors, and 139 other illustrations. So far as it is possible to pictorially represent the position of the fetus, the anatomical relations of the gravid uterus, and the ordinary obstetrical maneuvers, this has been admirably done.

SEXUAL DEBILITY IN MAN. By F. R. Sturgis, M.D. Price, $3.00. New York: E. B. Treat & Co. 1900.

The author dedicates his book to the sexual cripples of the United States, whose infirmities have in part contributed to his support. This we think is the first recognition of the patient as anything more than "material" in the art of book-making.

The opening chapters deal with the anatomy and physiology of the male sexual organs. Then follows a discussion of masturbation and onanism and their effects. The chapter on spermatorrhea is an excellent statement of this subject, the author making a clear distinction between this condition and prostatorrhea and urethrorrhea. Nocturnal and diurnal pollutions are fully described. The work closes with a description of sexual impotence and sterility.

It is a practical and useful manual, based on abundant clinical experience. The practitioner will find it helpful in the management of a troublesome class of cases.

MEDICAL AND SURGICAL ASPECTS OF THE SPANISH-AMERICAN WAR. By Lieut.-Col. Dr. Nicholas Senn. Chicago: American Medical Association Press. 1900.

This small volume gives a fair history of the medical aspect of the Spanish-American war. A considerable portion of the contents have already appeared in the form of letters in the *Journal of the American Medical Association*, but a number of chapters have been especially prepared for the purpose of rounding out the volume. Of especial interest are the comments of the author upon the deficiencies in the commissary and medical departments as they developed during the campaign, and how in the future they are to be met.

LEADING ARTICLES.

AN INVENTOR'S PLAN FOR ERADICATING MALARIA.

In 1873 W. S. Mayo published a novel, "Never Again." Among the characters was an ill-balanced inventor named Planly. One of his hair-brained schemes was for eradicating malaria by straining from the atmosphere, by means of screens and other suitable devices, the noxious elements. The views of Mr. Planly have received such substantial recognition by late scientific research that we feel they are entitled to some recognition, and we therefore reproduce them as set forth in the above mentioned book. The author, Dr. Mayo, was a liberal contributor to fiction, being credited with two other works, "Kaloolah" and "The Berber," and was one of the early American physicians to turn his attention to literature.

"No, I don't want to have anything to do with governments. I had enough of that kind of work in Italy with my plan for eradicating malaria, or counteracting its influence."

"And what of that plan?" demanded Luther.

The question was an incautious one. In an instant Mr. Planly started from his attitude of languid indifference, brushed back his hair from his forehead, as if brushing back the cobwebs from his brain, rolled his eyes—gleaming with a sudden light—as if taking a comprehensive view of all creation, and opened his mouth at the proper angle for a torrent of talk.

"Mind you," he exclaimed, "I have nothing to do with the origin and constitution of malaria. I have my opinion on this point, and a pretty strong one after twenty-five years' experiment and observation."

"At any rate," said Luther, "you think that whatever it is, it is the result of vegetable decomposition in moist places."

"I think nothing of the kind. There are objections to this old and nearly exploded theory that are insuperable. The low temperature at which the disease is frequently caused; the unaccountable production of disease when there is no decaying vegetation, and no marsh or even moisture, as in many places in Peru, or the wood tracts of Nepaul or Malwa, or in the dryest and most barren parts of the Maremma; the exemption of certain places where occur all the supposed elements, as in New South Wales, the Polynesian Islands; the inexplicable effects of cultivation in eradicating the

disease in different though similar years—all forbid us to longer entertain the old theory of vegetable decomposition. Ovolan, one of the Feejee Islands, is as volcanic as Sardinia, and Menouf is as dirty and moist a city as there is in Egypt, and yet remarkably healthy; Singapore, surrounded by jungles, is yet a sanitarium for Oriental invalids.

"But," continued Mr. Planly, "all this has nothing to do with my plan. I care not in what it consists, or what the cause. I propose only to take advantage of some of the laws governing its action, and the first great law is that it is operative only at night."

"That corresponds, I believe, to popular opinion," said Luther.

"And scientific opinion, too. Mitchell says malarious diseases are not producible by exposure in sickly places during the daytime; darkness appears to be essential. Lancisi, from extensive observations in Italy, confirms the same idea. The records of the British and American navies are full of proof that men visiting unhealthy shores in the daytime only will not take disease, but that sleeping one single night ashore is almost certain death. I will not keep you with these cases, but just listen to one single instance that I know of myself. Dr. Tyrrel, of Georgia, had some swamp-land which he wished to reclaim. A large gang of negro slaves were placed upon the ground, but most of them were at once taken sick and many of them died. The attempt was repeated several times with the same result, until Dr. Tyrrel adopted the plan of removing the slaves a distance of three miles at sundown, and sending them to their work after sunrise in the morning. Not a slave was taken sick after this. They could work in the swamp during the day with impunity, although it was so deadly at night that the acclimated negro could not escape the contagion.

"I could produce a thousand proofs," continued Mr. Planly, "of the rigid universality of this law, as well as of another fact, and that is, that whatever malaria may be, it is easily strained from the atmosphere, and is incapable of rising above a very moderate height, say forty or fifty feet. There is not an intelligent physician in Italy who cannot produce facts enough from his own observation to prove that malaria is confined to a low and thin stratum of the atmosphere. A hedge, a low fence, frequently shuts it out. It is safe to sleep on the top of a tower in the worst places in the Maremma. Sailors in the tops of ships are safe, while those below are attacked. The writers on malaria all agree on this point with each other, and with popular opinion, which makes the highest apartment in an exposed house the healthiest. That it can be

strained from the atmosphere there is overwhelming proof. Popular sentiment and custom proves it. McCulloch says that by surrounding the head with a gauze veil or canopy the action of malaria is prevented, and that it is possible to sleep in the most pernicious parts of Italy without hazard of fever.

"Many of the Spanish peasants, when at work in the morning or the evening, in the rice-fields, in the neighborhood of Valencia, wear a helmet or head-piece covered with gauze, which completely shields the nose and mouth.

"In some localities in the western United States it is a common custom to fill in the windows on the sides of the house exposed to the air of the swamps with gauze screens. Experience proves this practice to be a most effectual preventive.

"A gentleman who had a large and unhealthy plantation in the South told me he had adopted the plan of filling the windows of his house with gauze screens, and that he had thus been able to spend the most unhealthy seasons in safety.

"The efficacy of screens of wood and shrubbery has been long known. We learn from Theophrastus that the plain of Latium was covered, especially toward the sea, by forests of laurel and myrtle, that served to protect the country from the pernicious southern winds and to check the propagation of malaria.

"Two young medical officers left their ship for a short excursion of two or three days on Prince's Island, in the Gulf of Guinea. The famous Dr. Kane was one of them. One took the precaution of muffling his head at night in a thick veil, and escaped all disease. The other could not endure the discomfort of the veil, and contracted a violent fever.

"I wish you had a little time, and I would give you a thousand cases that I have accumulated, but we will hurry to the question, which I know has occurred to you, whether advantage may not be taken of these laws to prevent the injurious effects of malaria, and enable the most deadly soils to be cultivated in safety; and thus, in time, over large districts of country, to eradicate the evil and destroy the destroyer!"

"And you really think that that can be done?" demanded Luther.

"Easily. You have only to build malaria-proof houses—something like this," replied Mr. Planly, running to his desk and pulling out an architectural drawing; "an air-tight house that will accommodate a large body of laborers, with their wives and children—a kind of enclosed village, with all the appurtenances and appliances

of village life—and supplied with air from a lofty tower, furnished at the top with ventilating windows, filled in with some kind of gauze. Oh, I have calculated all the details: the cost either of iron or of stone or wood lined with tin plates, the amount of ventilation required, the amount of steam or animal power to give the required ventilation, and every little question of form, size, and internal arrangement. Well, I went out to Italy in hopes of getting a concession of malarious land large enough to warrant the formation of a company, and the trial of the experiment on a large scale. The plan was received with universal approbation. It was discussed in the scientific journals and reported upon by scientific men, and received the favorable notice of members of the government. You would have thought, as I did, that the thing was in a fair way to be tried. Lord bless you! you know not, and I hope you never may know, anything of the mysteries of Italian red tape."

INJECTION OF THE SACRAL CANAL.

On the 20th of April A. Sicard described to the Society of Biology a new method of injecting the spinal canal through the defect in the posterior arch, at the lower end of the sacrum. Fig. 1 shows the posterior opening at the junction of the coccyx and the sacrum, which permits of easy passage to the sacral canal. An injection made in this situation is outside of the dura mater, and is

FIG. 1.—Posterior surface of sacrum, showing defect in lower arch (Brocard).

quite different in its anatomical relations from the injection of the subarachnoid space for the purpose of producing general anesthesia of the lower extremities, which is done between the lumbar vertebræ and the sacrum. This injection of the sacral canal is found to be useful in certain neuralgias of the lower extremities and of the lumbar region. It has been employed by French physicians in the treatment of sciatica, a centigramme of cocaine being used, dissolved in a small quantity of water. Chipault has succeeded in producing a degree of anesthesia which enabled him to remove the coccyx without causing pain.

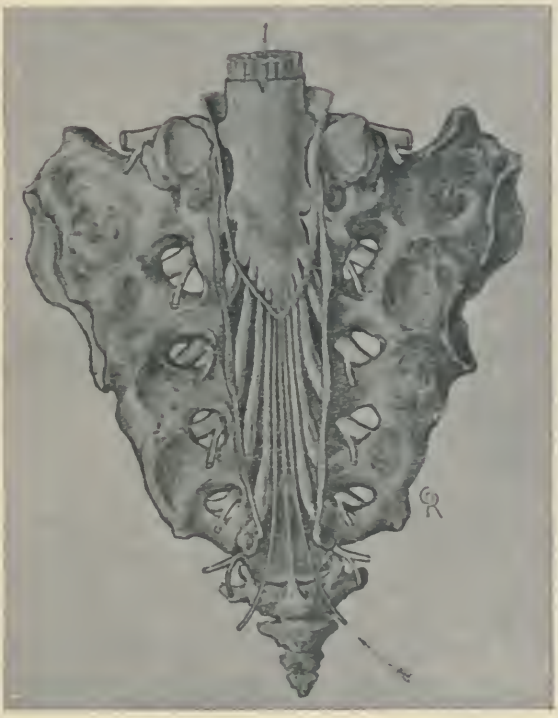

FIG. 2.—Shows sacral lamina cut away, exposing nerves and termination of the dura (Brocard).

In Fig. 2 the relation of the nerves in the sacral canal is shown, together with the termination of the spinal membranes. Colleville, who has had considerable experience with the method, employs a mixture of crystallized guaiacol 6 grammes, orthoform 0.5 gramme, benzoic acid 0.365 gramme, dissolved in sterilized oil of sweet almonds 60 cubic centimeters. The injections are commonly made

at intervals of twenty-four hours, employing from one to two cubic centimeters of the solution. An ordinary Pravaz syringe is used, the needle having a length of from five to eight centimeters. The patient should be placed upon the side, the legs flexed upon the abdomen and the pelvis upon the spine. Some writers prefer the knee-chest position, and Chipault has placed the patient in the Trendelenburg position, to facilitate the penetration of the liquid to the upper portion of the canal.

The anatomical relations, as seen in Fig. 1, show the defect in the posterior bony wall of the sacral canal. This in many patients is marked by a lozenge-shaped depression which is easily recognized. In others, particularly the obese, the bony landmarks must be carefully followed. In every instance the needle should be passed directly in the middle line, and so far as possible in the axis of the

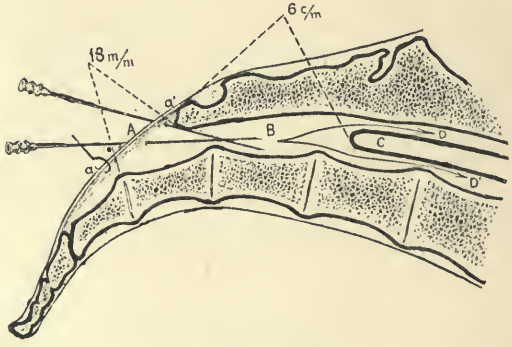

FIG. 3.—Faulty and correct position of the needle (Brocard).

sacral canal. In Fig. 3 is illustrated the faulty and correct insertion of the needle. In a few subjects the recognition of the bony landmarks may be difficult, and in these it is necessary sometimes to choose a point seven centimeters above the tip of the coccyx in the middle line. This commonly permits of easy entrance to the sacral canal.

There commonly follows the injection a sensation of numbness, which is felt as high as the lumbar region. In no case was headache, fever, or nausea noted. The immediate effect upon pain in the lower extremities is relief, and in some cases of severe sciatica the patients claim to have secured an instantaneous cure. The anesthesia lasts from two to three hours. The pain commonly remains absent for several days in case it has been employed in a painful affection of the nerves of the lower extremity.

SUBCUTANEOUS INJECTIONS OF PARAFFIN.

Gersuny, in *Zeitschrift für Heilkunde*, Neue Folge 1900, Bd. i, Heft 9, showed that the injection of paraffin was followed by no reaction. In his first case, one of double castration, the cavity left by removal of the testicles was filled with paraffin. A second case by the same writer was one of urinary incontinence in a woman, cured by the injection of vaselin in the submucous tissue about the orifice of the urethra. At the end of a year the incontinence had not returned. While some authors have contended that vaselin is absorbed, the experience so far points to the fact that it is not taken up by the vessels, that it is entirely devoid of toxic properties, and produces no reaction in the tissues. It has been conclusively shown that there is no chemical reaction between the tissues and the vaselin. The vast experience which the profession has had with ordinary white vaselin having a melting point of from 36° to 40° C. shows conclusively that it is devoid of toxic properties. Experiments upon animals have been made in considerable numbers with the injection of large quantities of paraffin, and these show that there is no inflammatory reaction produced—at the most, only a slight edema; but like all foreign bodies, some granulation tissue develops about it. In man the injection of paraffin having a melting point of 36° to 40° C. causes a somewhat greater reaction than in animals, but never going to the extent where it could be called inflammation. Hard paraffin will cause inflammation in the tissues, but ordinary vaselin, which is of salve-like consistence at ordinary temperatures, is, when injected beneath the skin, almost liquid, and as such causes no irritation. A mass of paraffin becomes surrounded by a capsule, and remains for a long time. Just how long is not yet known, as the oldest injections were made within the last two years, but in that time there is no diminution in the size of the mass of vaselin. In the first case of Gersuny several injections were made into the scrotal sac on the right side, in all amounting to 11.6 cubic centimeters, and on the left side 10 cubic centimeters. At the end of eight months the tumor caused by the injections was of the original size, and had not caused the slightest discomfort. In May, 1901, at the end of two years, the condition was unchanged.

The consistence of the injected paraffin may be varied by mixing together, in different proportions, hard and liquid paraffin. If of too firm consistence, it is necessary to heat it to a considerable degree, and this should be avoided, as the best results are achieved by a preparation which is quite soft at the body temperature. The only danger from the injections, namely, the formation of an embo-

lus, can in this way be avoided. A mixture is prepared and heated to the boiling point in an open capsule, which is sufficient for perfect sterilization. A syringe is then filled, and after it has cooled to about the temperature of the body an injection is made, the paraffin being pressed through the barrel of the needle, and emerging from it in worm-like threads, resembling somewhat a sebaceous cyst when emptied by pressure.

The paraffin injections have been employed in a number of cases. In one instance a small fistulous tract in the soft palate was closed by a single injection. In another a small communication between the mouth and the nose, which had been left after an operation for cleft palate, was closed in the same way. In a case of amputation of the rectum in which several operations had been performed to restore the continence of the rectum, but had all failed, relief was obtained by ten cubic centimeters of vaselin, which was injected beneath the mucous membrane of the rectum, the tumor being subsequently restored within the relaxed opening. This was followed by an improvement of the rectal prolapse, but there was still incontinence. Two subsequent injections were made, one of six cubic centimeters and one of eight. These were followed by great improvement in the ability to retain the contents of the rectum.

Ludwig Moszkowicz, in the *Wiener Klinische Wochenschrift* of June 20, 1901, gives an excellent *résumé* of the literature of this treatment, and also of the extensive experience which he has had in its application. One of his interesting cases was a man 75 years of age with a large scrotal hernia, who had suffered from three successive strangulations. The patient would not allow operation, and each time strangulation was overcome by manipulation. In this case twenty-five cubic centimeters of vaselin was injected into the hernial canal, which reduced the opening so much that where recently four fingers could be introduced, now one was with difficulty passed. This reduction in the size of the hernial opening permitted a truss to be applied, which controlled the hernia perfectly. A similar result was obtained in a case of hernia in which the patient would not permit operation. In 1896 a rectal operation was performed, and four years later a small protrusion was noticed at the external ring. This was injected with four cubic centimeters of vaselin, and was followed by a complete disappearance of the defect.

In gynecological cases it has been employed to form a submucous pessary in cases of vaginal prolapse. One patient 60 years of age, with prolapse of the anterior vaginal wall, received an injection of

thirty cubic centimeters of paraffin in the anterior wall of the vagina. One week later an additional twenty cubic centimeters was injected; this was followed by a complete disappearance of the prolapse. A 36-year-old woman was operated on for a fecal fistula and an associated prolapse of the uterus. In this case, near the entrance of the vagina and beneath the mucous membrane, ten cubic centimeters of vaselin was injected. This was followed by a relief from the prolapse. A third case was that of total extirpation of the uterus for carcinoma, followed by a vaginal prolapse. An injection of ten cubic centimeters of vaselin in the anterior and posterior vaginal wall overcame this.

In the correction of deformities, Moszkowicz has employed the method to some extent, particularly in that variety known as the saddle-shaped nose. In these cases one-half cubic centimeter of vaselin was injected. The needle was entered at the root of the nose and the vaselin slowly injected, at the same time being correctly placed, and shaped by the fingers. In another case, in which a large portion of the upper jaw was removed for a carcinoma, the cheek was injected with vaselin so as to overcome the sunken appearance due to the defect in the alveolar process of the jaw. In some cases it is possible to use the method in overcoming a sunken scar, raising the depressed portion to the level of the surrounding

FIG. 1.—Saddle-shaped deformity of the nose before the paraffin injection (Moszkowicz).

FIG. 2.—After the use of paraffin (Moszkowicz).

tissue, and thus making it less apparent. In one case there was marked retraction of the thorax. Sixty-five cubic centimeters of vaselin was injected, with marked improvement in the deformity and without the slightest local disturbance.

THE RADICAL CURE OF CERVICITIS.[1]

In cases of cervicitis accompanied by the catarrhal plaque containing cysts around the external os, the method of Pouey gives excellent results. The operation is begun by fixing the external

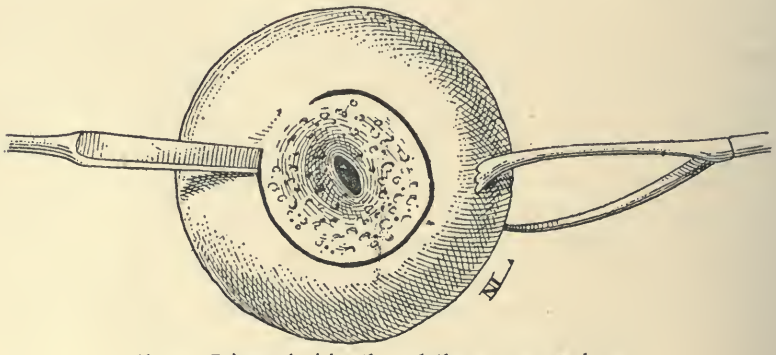

FIG. 1.—Primary incision through the mucous membrane.

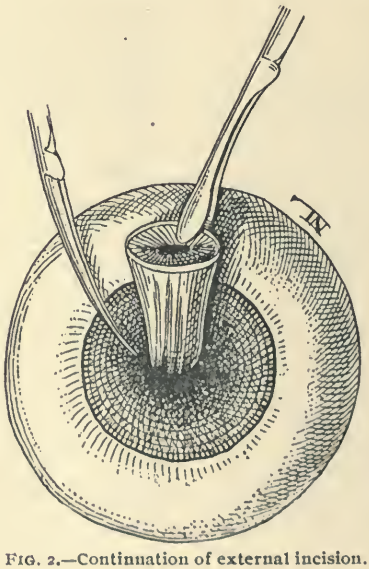

FIG. 2.—Continuation of external incision.

[1] Paul Petit, in *La Presse Médicale*, March 22, 1901.

os, and at the same time depressing the uterus. Heger's dilators are used to enlarge the cervical canal, and they are sometimes left in place to act as a guide for the incision. The involved surfaces are encircled by an incision which extends through the mucous membrane and involves the underlying muscles, extending two or three millimeters up the canal (Fig. 1).

The dissection is continued with a pair of curved scissors. The portion that is removed contains all the endocervical glands for the

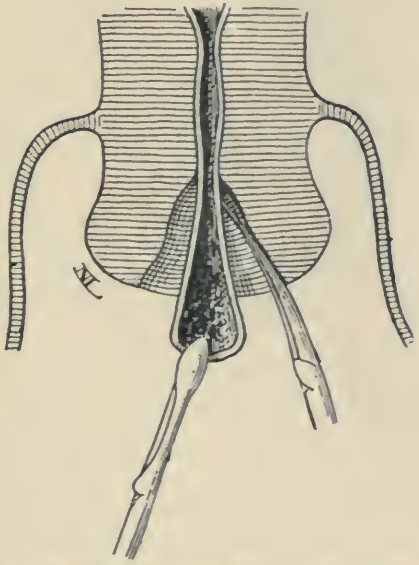

FIG. 3.—Diagrammatic representation of the operation.

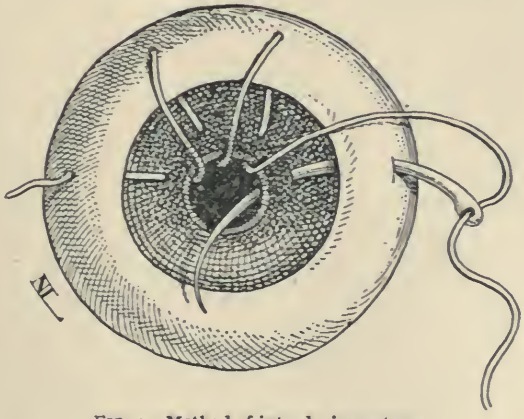

FIG. 4.—Method of introducing sutures.

most part, but it rarely extends upward internally to exceed two or three millimeters. As soon as the circular incision is completed, the dissected portion, which includes the mucous membrane with its glandular structure and a certain proportion of the underlying musculature, is severed at the bottom of the incision (Fig. 2).

The extent of the operation is shown in schematic section (Fig. 3).

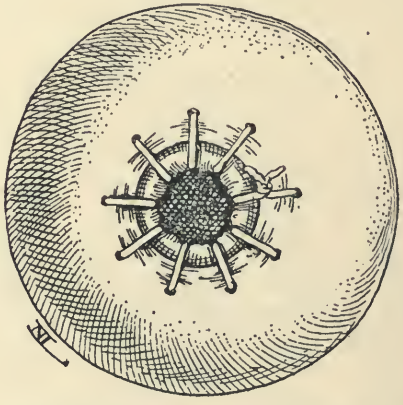

FIG. 5.—Sutures tied, showing coaptation of mucous membrane.

A continuous suture of catgut is employed, which brings in apposition the severed mucous membrane of the canal and that of the vaginal portion. It is essential that this suture be passed quite deeply, that it include some of the muscular structure so as to occlude the deeper portions of the wound, and at the same time not to interfere with the accurate coaptation of the edges of the mucous membrane (Figs. 4 and 5).

EDITORIAL COMMENT.

BRAIN-STUFFING OF THE UNDERGRADUATE.

A recent special article in *American Medicine* of June 22, 1901, from the pen of Dr. Charles E. Woodruff, of the regular army, on the nervous exhaustion due to West Point training, gives a striking indictment of the cramming process in education. We question whether a similar parallel might not be drawn between many of our professional schools and that of the military academy. Dr. Woodruff states that the men admitted to West Point are, for the most part, picked, and nearly half of them are weeded out before the day of graduation; and he pertinently asks, "What is it the school does to them to snuff out their abilities or keep their light under a bushel? for it is certain that the output of the academy is nothing like what it should be." The method of admission to the academy is criticized, based as it is upon quickness and memory, as they lead to the formation of judgments not based upon correct and deliberate reasoning. Great men are frequently noted for having been poor students at college. Quickness and brilliancy may exist in degenerate minds of very low order, and boys of this class can enter the academy, but they never stay long.

A large number of failures in West Point are due to nervous exhaustion caused by unwholesome high pressure. The amount of work performed by the cadet is prodigious. Under rigorous discipline the mental and physical capacity is taxed to the utmost six days in the week. The whole course covers three times as much ground as any brain can healthfully absorb. In addition, the cadets become expert in memorizing for short periods. They can read over certain lessons so intently that they can recite them if asked within an hour, but so soon as they leave the class-room they feel the knowledge oozing out, and by the next day they have forgotten much of it. The length of daily lessons is so inordinate that no brain can learn them properly. This method of using the superficial memory is the best that the cadet can do, and it is vicious in every respect. The high pressure leads to deficient sleep, and it is actually found that under the regulations it is impossible for them to get more than eight hours' sleep in winter and seven and a half in summer, which is too little for the young. In addition to the exhausting strain of discipline and overwork comes anxiety due to a fear of failure in examinations. A com-

parison is made which is unfavorable to the West Point institution as compared with the military schools of Germany and England, the latter having a less number of hours to work a week and a much larger number of vacations. Thus in the British school a cadet has sixteen weeks' holiday in a course of eighteen months, while the West Pointer gets but sixteen weeks in forty-eight months.

The suggestions for improvement are that the vacations should be lengthened and the amount of work reduced, and the course so far reduced that a fairly good brain can absorb it properly.

It is only recently that pedagogy, as a science, has made any considerable strides, but a scientific study of the education of the child is beginning to show in our primary schools, and to some extent in our high schools and universities. In our medical schools practically no attention is given to the number of hours of study and the requirements. Study after study has been added, and specialty after specialty has been elevated to the dignity of a department, without any corresponding study of what the requirements of a medical education should be. Like West Point, we are stimulating our students by competitive examinations for hospital physicians and scholarships, and we are giving very little attention to the development of correct habits of thought and the development of the reasoning powers. Are we not developing the superficial memory and that nimbleness of mind which will, after all, do little for our students in after years? Is it not true that the present methods of medical education tend to the direct encouragement of the mental sponge capable of great absorption, but not able to produce? The large proportion of men who distinguish themselves in medicine are those who come, not from those who have achieved honor or distinction as students, nor, indeed, from the bottom of the class, but from the middle of the class who attracted little attention during their college career.

It is a singular thing that with the fund of physiological knowledge in our medical schools so little attention should be given the student body, and no effort made to ascertain what should be the limits of a medical education, how much can profitably be taught, and how many hours should be devoted to study.

THE EVILS OF CLOTHES.

The time has arrived for our midsummer editorial on the evils of American sartorial styles. We have again been treated to an exhibition of men walking our streets, in atmosphere reaching 100° F.,

attired in woolen coats and vests, and beneath these white shirts with fronts in them misnamed "bosoms" starched to the stiffness of a board. A still deeper strata is called by courtesy "light summer underwear," sodden with perspiration, redolent with odors easily perceptible when a passing zephyr displaces some of the outer clothing. Last year we discussed the shirt-waist, and we were then of the opinion that a triumphing common sense would lead mankind to the adoption of this sensible innovation in dress for summer wear. It seems, however, that fashion has irrevocably decreed that woman alone shall look clean, cool, and comfortable during the hot summer months, and that man shall go fretting and fuming and perspiring and exhaling foul odors.

Now that the temperate portions of the earth have become thickly settled, the so-called civilized nations are reaching out and annexing tropics, and forcing upon the natives an unwelcome civilization, whose chiefest evils are rum, gunpowder, tobacco, and clothes. The public press has had frequent references to the increase of mortality among the native Hawaiians of late, due in large part to their inordinate fondness for articles of apparel which are worn in the temperate regions of the earth during the summer solstice, when the thermometer is about 98° in the shade. Formerly the natives of the tropics were quite content to be attired in a layer of cocoanut oil, which had the merit of being well adapted to the human form, and of shedding water. Such an airy and graceful costume has fallen into abeyance, and they have taken to substituting duck, flannel, and, we presume, some of the so-called light summer underwear, which is prevalent in this region. In consequence the perspiration-soaked clothing prevents transpiration from the surface, and brings on colds and rheumatism, as the savage has not been inured by long generations to such unsanitary conditions.

We are satisfied that the white man's clothes will prove no inconsiderable addition to the black man's burden, and will tend not a little to that depopulation of the tropics which will render them such desirable and pleasant places for the Christian wearers of heavy clothing. After the tropics have been settled it will be necessary for us to invade the Polar regions, and then the unfortunate Esquimaux will have to go. Of course, in this case it will not be too much clothing, but by the opposite process; he will have to discard his walrus-hide boots, his bearskin undershirt, and sealskin hat for a Prince Albert coat and silk hat and dogskin gloves, to conform to the fashionable attire of man during the winter months. With this yielding to fashion it will be found that the

denizen of the arctic regions will not be wholly protected from his indulgence in the fashionable mandates by his germ-free atmosphere. Pneumonia and consumption will claim him.

It is impossible to say how much of discomfort, not to say actual disease, is the product of improper clothing during our heated terms. It contributes a material factor to the production of heat-strokes, and is doubtless productive of rheumatism, neuralgia, and other conditions dependent upon a constant application to the skin of damp clothing. The skin needs air almost as much as the lungs, and one going about in our hot weather clothed in but a single garment which is readily permeated by the air has a realizing sense of the comfort attending ready evaporation from the surface.

YELLOW FEVER A MOSQUITO-BORNE DISEASE.

An elaborate article by George M. Sternberg in the *Popular Science Monthly* for July, 1901, gives an unqualified indorsement to the theory that yellow fever is a mosquito-borne disease. The experiments that have been conducted in the isolation camp near Havana seem to be quite conclusive upon this point, and they are described with a wealth of detail that leaves nothing to be desired.

Every precaution was taken to exclude yellow fever patients; the only contact with the outside world was with persons immune to the disease, and a careful observation of the non-immunes, which included a taking of the temperature three times a day. After the usual period of incubation of yellow fever had been passed, and the absolute freedom of the persons upon whom the experiments were to be made was demonstrated, then the experiments were begun. They consisted of two series: A certain number of immune patients, associated with others, were bitten by mosquitoes which had previously bitten yellow fever patients. In 80 per cent yellow fever developed, but in no case did the disease extend to those associated with the bitten persons, where the latter had been kept from contact with the mosquitoes. A further series of experiments related to the possible extension of the contagion of yellow fever by means of soiled clothing, bedding, etc. For several days, in a specially constructed room, non-immune persons were brought intimately in contact with quantities of soiled linen, sleeping in the soiled beds, or wearing the shirts of persons who had suffered from yellow fever, but in no instance did one of them take the disease, notwithstanding that all means of disinfection, such as fresh air and

sunlight, were excluded so far as they could be, and still render the room habitable. The same individuals placed subsequently in a room containing mosquitoes which had previously fed upon yellow fever patients promptly developed the disease.

These experiments seem to be quite conclusive, and form one of the most interesting chapters in experimental and preventive medicine. They have already led to a modification of the quarantine and disinfection regulations of the army, and their importance and value cannot be overestimated. Like the theory that malaria is a mosquito-borne disease, corresponding with the distribution of the Anopheles mosquito, the natural history of the epidemics of yellow fever is found to present a striking analogy in the distribution of mosquitoes and the prevalence of the disease.

To Dr. Findley belongs the credit of having first called attention to the mosquito as a possible conveyer of contagion in this disease. His inoculation experiments, some eighty in number, were not conclusive, but they have now been demonstrated to be due to the fact that a sufficient time had not elapsed from the time that the mosquitoes bit an infected person until they were allowed to try to communicate the disease. It is found that a period of twelve days must elapse before the infection can become active in the body of the mosquito. It would seem from the evidence so far gathered that the mosquito is a necessary intermediate host for the yellow fever parasite.

ANNUAL REPORT OF THE CRAIG COLONY FOR EPILEPTICS.

The report of the medical superintendent of the board of managers of this the first of the American colonies for epileptics contains much that is of deep interest to the philanthropist and the sanitarian. The medical superintendent has wisely eliminated from his report many of those statistical tables which relate to the price of cornstalks and of wheat, which form such a large part of many of the reports of our public institutions.

Three hundred and forty patients were admitted during the year, and the superintendent reiterates the statement which has been made ever since the founding of the colony, that it is not intended for the feeble-minded, the crippled, the paralyzed, or the blind, but for those who can be up and about and engage in some useful labor; in other words, those who are adapted for colony life. The distinction is made that in idiocy and imbecility we have constant conditions, while in epilepsy the manifestations of the disease are irregular and intermittent. If idiocy is the predom-

inating characteristic of a case, it should be sent to an idiot asylum; and if feeble-mindedness, to an institution intended for that class.

It is said that nearly 10 per cent of the epileptics find their way to the colony because they are unmanageable at home, and the writer makes the statement that some degree of mental unsoundness exists in 98 per cent of those who have suffered for any time from epilepsy. The mental unsoundness, however, is not continuous. Another deduction is that unless the epilepsy improves they invariably get worse, with progressive impairment of the mind. The colony improves from 75 to 80 per cent, and 7 to 10 per cent get well; the remaining portion go down into hopeless dementia.

A certain proportion of cases are found to do well under the discipline of colony life who cannot get on well outside, and show a marked decrease of their epilepsy. As soon as they are exposed to the stress of life away from the colony there is a great increase in the mental instability and in the number of their seizures.

A useful hint is found in the description of the Tallchief cottage. This was a building originally on the colony grounds built by the Shakers from thirty-five to forty years ago. It is a two-story building, the rooms are large, of uniform size, and square, and there is an absence of angles and acute corners, with an abundance of light everywhere. At the end of forty years it is found practically useful, though built originally of wood. Such a building can be erected for about $200 a bed, including plumbing, heating, and electric lighting.

In the original wording of the law the word "custodial" was omitted, so that no patient is retained at the colony solely as a matter of affording food and shelter or to separate him from the world. They are all voluntary patients, sent there for a scientific and careful treatment of their disease.

In the colony there are no locked doors or barred windows, save for a few who are temporarily insane and demand isolation for self-preservation. All of the colonists are at liberty to roam over the 1198 acres which compose the domain belonging to the institution. As far as they are able, all are required to do some sort of work.

THE TREATMENT OF ANEURISMS OF LARGE VESSELS.

The recent operation of W. W. Keen (*American Journal of the Medical Sciences*, September, 1900) in ligating the abdominal aorta calls attention to the possibility of ligating large vessels in cases of hemorrhage, or disease of the arterial wall. The study which Keen

gives, and the number of times in which this operation has been performed, show that the danger has always been from secondary hemorrhage. At first thought it would seem that the establishment of the collateral circulation would be the most difficult, but in such apparently unpromising circumstances as that of ligation of the abdominal aorta the collateral circulation is established with remarkable ease. The patient of Keen lived forty-eight days, the aorta having been ligated with four strands of soft silk passed from left to right, between the vena cava and behind the aorta just below the diaphragm. There was no disturbance of sensation or motion in the lower extremities, and on the following day the femoral artery was found to be pulsating slowly. Hemorrhage took place at the point where the upper ligature was applied, it having cut through the arterial wall. That in the human subject ligation of the abdominal aorta is practical is shown by the fact that three of the thirteen cases operated upon lived long enough to establish the collateral circulation.

A difficulty that has not heretofore been fully appreciated in ligating large blood-vessels is the difference between the structure of the large arteries and the smaller. Formerly the surgical rule has been in ligating to apply sufficient force to cut through the middle coat of the artery and agglutinate the internal coats, leaving the strong external coat to resist blood-pressure. In the larger arteries vascular pressure is much higher, and a peculiarity of their structure as distinguished from the smaller is the relative lessening of the muscular structure and the large increase in yellow elastic tissue. The latter is deficient in metabolic activity, and secondarily the healing process and collateral circulation in the vessel wall after ligature is very slowly established, while at the same time the blood-pressure is very great. This leads to early rupture.

The late Professor Gunn, in discussing the ligature of the innominate artery, which he had never performed, said that should a case present itself requiring ligation he would carefully expose the artery and ligate it with silver wire, using a comparatively large ligature and carefully compressing the vessel wall just to the point where pulsation distal to the ligature was extinguished, but not sufficiently compressing the tissues to interfere with their nutrition. He hoped in this way to obtain an adhesive inflammation which would sustain the high vascular pressure at this point, and thus prevent a secondary hemorrhage. A similar idea has occurred to Professor Keen in devising a clamp which shall compress a portion of the aorta without compromising the integrity of the tissues.

THE FAULTY USE OF MEDICAL LITERATURE.

Ex-President Gillman, of the Johns Hopkins Hospital, in a recent address to the graduates of the women's class, deplored what he called an era of reading. He said: "Reading is a kind of craze that has gotten hold of the people. It is a dangerous habit like a stimulant. The publishers are constantly putting new attractions in the field, and the reviewers excite our appetites. It is, no doubt, very pleasant to be up to date, well posted, and in the swim about the latest issues from the press, but we are all in great danger of reading too much."

If this is true of the general reader, it may be equally true of the medical reader. It is not always the easiest reading that is the most helpful. There is a growing tendency in medical literature to make things easy; short statements of difficult problems, rule of thumb methods that do away with difficult calculations, easy methods of diagnosis and treatment that are urged upon the practitioner because of the facility with which they are acquired and the fact that they do away with the necessity of thought. It is difficult to estimate the evil that may follow in the train of such slipshod methods, and how much they may do to sink the practitioner who yields to them into a routinist or a mere prescriber. No good practitioner of medicine is ever produced except by hard and vigorous thinking, and it is the process of mental digestion and assimilation that improves the quality of the mental product, and so far as this vigorous exercise of the intellect is dispensed with, it is weakened.

We question the value of aimless reading in medical literature, the sort of skimming of medical journals very much as one glances through the daily paper. It may keep one informed of the gossip of the profession, or may give one a hazy idea that discoveries have been recently made in this or that department of medical science, and as such may have a superficial value, but it will do nothing to strengthen one's comprehension of medical problems. For this one must substitute the *study* of medical literature. This can only be done by an exhaustive research in the literature upon a given topic, or reading in reference to one's individual experience, as cases present themselves.

Individual progress can only be made by the objective study of a disease, mastering our instruments of precision, and an exhaustive study of the literature, as we have described; the three cardinal principles—observation, experiment, and deduction, the latter aided by the printed thoughts of others—are the only possible avenues to mental growth. If they are substituted by a superficial skimming

of medical literature, as a pleasant method of passing the time, under the happy delusion that one is studying medicine, they can but result in mental stagnation.

MACARONI AS AN ARTICLE OF DIET.

That this substance is a valuable food product has been recognized by the Italians for years. With them it is a national dish. So far as it has been adopted in foreign countries, and particularly in America, it seems to have met with marked favor, being a digestible and palatable food. The origin of macaroni is uncertain, but it is probable that the preparation was the outgrowth of the peculiar varieties of wheat which are raised in Italy and the northern part of Africa. The grains of the cereal, as grown there, contain a much larger quantity of gluten and other nitrogenous compounds, and it is called by the Italians *grano duro*. The term macaroni is applied to a paste made with flour obtained from this hard wheat, and which is pressed into hollow cylinders. Exactly the same substance is obtained under the term vermicelli, only it is drawn into cylindrical threads and is occasionally found under various fanciful forms as Italian *pastes*. In the preparation of these *semolina*, the flour obtained from the hard wheat, is thoroughly mixed with boiling water, and while hot is placed in a strong metallic cylinder which is closed by a thick disk pierced with openings, which correspond with the article to be made. The cylinder is accurately fitted with a plunger, which under powerful pressure causes the stiff dough to squeeze out through the openings in the disk in continuous threads, sticks, or pipes, as the case may be.

Heretofore it has been believed that American wheat did not lend itself to the manufacture of macaroni, but this has been experimentally shown to be false by the fact that at Castellamare macaroni of excellent quality has been made from American wheat; all that was needed was to have the wheat fully ripe before it was gathered. It is uncertain whether the wheat of the northern portion of the United States will ripen sufficiently in the short seasons to produce the large quantity of gluten in the kernel characteristic of the thoroughly ripened grain; but the central and southern portions of the United States should produce a wheat that in every respect is similar to the hard wheat of Africa and Southern Italy.

Heretofore the cost of macaroni and similar products has precluded its extensive use among people of moderate circumstances, but an abundant and cheap supply of these products will undoubtedly

lead to their more extended use. As a substitute for starchy foods they are invaluable, and probably they do not contain more starch than many of the so-called gluten foods which are put up for the consumption of diabetics. They afford a most valuable supply of vegetable nitrogen, and we are surprised that in the frantic efforts of the vegetarians to substitute vegetable for animal nitrogen attention has not been more strongly directed to this substance.

VEGETARIANISM.

A correspondent in *The Lancet* of June 1, 1901, reports the lengthy debate which was recently held in the Berlin Medical Society on vegetarianism. The discussion was opened by Dr. Albu, who said that actual experiment has shown that a person can live on a purely vegetable diet. Voit and Rumpf have found that nitrogenous equilibrium is established with a patient upon a vegetable diet. Albu has known of a woman who lived upon an exclusively vegetable diet for six years, and her health was perfect. The examination of this woman's food ingestion and excretion for five days showed a nitrogenous increase, thus demonstrating that the vegetable diet is a practical possibility. While such was the case, in the opinion of Dr. Albu a vegetable diet is not advisable for healthy persons, as it is not so easily absorbed and is bulky and monotonous. A vegetable diet for invalids might be advantageous, but it should usually be accompanied by milk. Such a dietary might find its application in neurasthenia and diseases of the gastro-intestinal canal. It should never be continued more than six or eight days. A vegetable diet is useful in chronic constipation, general obesity, gout, neuroses of the heart, and Graves's disease; it may also be useful in Bright's disease. Some patients have a marked idiosyncrasy to such a diet. Generally speaking, the drawbacks of vegetarianism have been exaggerated by its adversaries.

In the discussion Professor Rosenheim said that although certain persons accustomed to a vegetable diet could get along very well without the use of meat, it was a different thing to suddenly change the food of a man who had been a meat eater all his life. In most cases, in prescribing a vegetable diet, it is well to add to it butter, milk, and eggs. In the further discussion it was asserted that the necessary albumen is with difficulty obtained from vegetables alone. Thus bread, if taken alone, requires 1740 grammes. Prisoners at the beginning of the century had an exclusive vegetable diet, and

an enormous morbidity and mortality, but as soon as this was changed to mixed food their health was improved. It is a mistake to believe that there are nations who live exclusively on a vegetable diet; there are none but take some animal food.

THE MENTAL STRABISMUS OF THE ANTIVIVISECTIONISTS.

We have recently read in a lay journal that at the Interstate Park on Long Island, New York, 20,000 pigeons were shot at to settle the question of supremacy at a tournament and to incidentally furnish sport for a considerable number of spectators. The mechanism of this sport requires that the pigeons should be liberated from a trap, when they are shot at in the air, and it is necessary to injure them sufficiently to have them fall within bounds. Of course, some are killed immediately, and if this were the case in each instance but little fault could be found with the sport, however barbarous, but not necessarily cruel. As a matter of fact, many birds manage to escape after being wounded, and ultimately die of cold and starvation if their wounds are such as to make them unable to fly. "Many with wings and legs broken were scattered about on the ground struggling fitfully. At intervals the shooting was interrupted to allow the agents of the Humane Society to go about the field and put an end to the birds that were bleeding and dying."

In the interests of humanity the legislatures have prohibited cock-fighting and dog-fighting, and in the interests of a higher morality have put some limitations upon prize fights. Instinctively the humanity of the age is disposed to protect dumb brutes from wantonly inflicted suffering. That branch of the general movement in favor of the rights of animals which has arrayed itself against vivisection is pursuing a very short-sighted policy when it fails to see that such experiments are always undertaken for the highest motives, to obtain a knowledge of disease or of its treatment. Practically all vivisection experiments require the use of anesthetics that they may be successfully conducted, the inhibition of pain and lessening of shock being essential factors in the successful working out of the experiment. Again, the number of experiments that are made is very limited. Compared with the wholesale maiming of 20,000 pigeons within a couple of days the amount of suffering from vivisection sinks to microscopic proportions. Would it not be possible for our friends, the antivivisectionists, to turn their attention to such obvious wholesale cruelities as that described?

STATE LABORATORIES IN THE AID OF SANITARY WORK.

The success which has attended our municipal laboratories leads to the view that an extension of the same principle would result in a valuable improvement in our State sanitary work. Our lawmakers do not seem to have a lively sense of their relation to the public health. It is only when a crop is threatened or an epidemic among live stock is imminent that the purse-strings of the public treasury relax and money is forthcoming to stay the ravages of the pest. We doubt if the work of Pasteur, great though it was, upon human disease would ever have attracted the attention which it deserved had it not been for his wonderful studies of phylloxera, which restored prosperity to southern France.

A few of the States of the American Union have State laboratories which are doing good work, but in many this department of public health work is notoriously neglected. Particularly is this true of the State of Illinois, where no laboratory work is done by the State. There are few cities outside of the city of Chicago that have sufficient population to permit the establishment of a public health laboratory; hence the necessity of this matter being taken up by the State. It was unfortunate that when the medical law was passed two years ago the legislature could not be induced to establish a separate board of medical examiners. If this had been done it would have relieved the Board of Health of the onerous duty of licensing all physicians, and would have left them free to organize a public health service, an important branch of which would have been a State laboratory.

THE CORONER SYSTEM.

This lingering medieval institution has received a considerable shock in the recent developments of the Defenbach case in Chicago. It seems that the facts brought out there show that an alleged inquest was held upon the body of one Marie Defenbach, in which no one was present but the deputy coroner and possibly some witnesses; at least, there is a record in the coroner's office that shows some testimony was taken. The jurors in this case were six empty chairs, and the names signed to the verdict were all placed there by the deputy coroner, and it is presumed at least that the fees for the jurors found their way in a lump sum into the pocket of the aforesaid deputy. There is even some uncertainty as to whether there was a corpse in this case. It is currently believed that Marie Defenbach met her

end by foul means, and that this so-called inquest was for the purpose of covering up the means by which her life was terminated. There is a well developed suspicion that she may not be dead at all, as all that was needed to secure the payment of the insurance on her life was a record of her death, and this coroner's inquest might just as well have been conducted in the absence of a corpse as without the presence of jurors.

The holder of the inquest has, we understand, been indicted by the grand jury, and it is to be hoped that in his trial the method of administering "crowner's quest law" will be thoroughly ventilated, and that the disclosures may be instrumental in relegating this ancient institution to a well merited obscurity.

CONTAGIOUSNESS OF LEPROSY.

At short intervals we are treated to scare-heads in the lay press anent a case of leprosy that is at large in the community. There is an unwarranted fear among people of the dangers of contagion in this disease. Leprosy is an infectious disease that must always be spread by contact in about the same way that syphilis is. Without the direct inoculation of the lepra bacillus into a broken surface the disease cannot be acquired. It has been successfully transmitted to criminals and also to other persons at the time of vaccination. In leprosy, as in syphilis, cleanliness and the absence of direct contact with ulcerating or discharging surfaces is sufficient to protect from the invasion of the bacillus. Father Damien, who officiated so many years in the leper colony of Hawaii, notoriously neglected all hygienic precautions, and consequently he ultimately contracted and died from the disease. Two nuns who have been in the colony for many years have thus far remained free from the infection by reason of the extraordinary care which they have taken to protect themselves, though being constantly associated with lepers. Unquestionably intimate personal association with lepers increases the chances of infection, but with ordinary care there is little danger of contracting the disease.

ABSTRACTS.

MEDICINE.

Parasitic Origin of Malignant Growths.—

In view of the recent publication of Gaylord upon the etiology of cancer, we reproduce here in part an abstract of the recent work done by Leopold in Dresden, from the pen of Dr. John G. Clark (*Progressive Medicine*, June, 1901). In June, 1896, Leopold and Rosenthal described cells in carcinomatous tissue which showed independent ameboid movements. Rosenthal found in fresh carcinomatous tissue round bodies filled with yellowish angular or oval granules, of a glistening appearance. These bodies appeared to move about in the cells and escape into the surrounding fluid; their movements were peculiar and very active. When not too closely crowded together in the body of the cell they were in active motion. After watching these granules for a sufficient time one would be seen to escape, breaking through the cell membrane; this would continue for hours until the cell was empty. This expression of the granules was sometimes noted immediately after the preparation of fresh specimens, and sometimes in those which had been embedded in paraffin for three days. This phenomenon was favored by a temperature of from 20° to 30° C.

The question presented was whether these bodies were component parts of the cells, or true parasites. This question was left in doubt by Rosenthal.

Since this communication Leopold claims to have obtained pure cultures of blastomycetes from human carcinoma, which were experimentally transplanted in animals and produced malignant growths, from which the organism was again recovered. The best material was obtained from the carcinomatous ovaries of a young woman, and every effort was made to exclude other bacteria. The tissue was immediately transferred to the microscope, where by means of a carefully warmed stage the germ was kept alive in a hanging drop of bouillon for over 200 days. Fresh carcinomatous tissues were studied, not only in sterile culture media, but also in macerating fluids, by which means the cells were digested, leaving the parasites unchanged. The best culture medium was found to be acid gelatin, which is not liquefied by blastomycetes.

Kahane has repeatedly found blastomycetes in fresh sarcomatous

tissues. The question is, do they bear an etiological relation to the development of cancer? This, notwithstanding the assertion of Leopold, Clark does not regard as conclusively settled. He believes that there are problems in the origin of malignant growths still unsolved, but thinks that we may be on the verge of a final discovery along these lines. That we shall ultimately find a cure for cancer, if it is due to a parasite, he thinks certain. Heretofore the chief difficulty with germicides has been that if of sufficient power to destroy the microorganism, they will likewise destroy vital tissues and lead to general toxemia and to death. On all of these points, however, it is easy to theorize, and to theorize in medicine is usually a waste of time.

The So-called Traumatic Neurosis.—

H. N. Moyer, in *American Medicine* of June 22, 1901, in a discussion of the traumatic neurosis, says that the term in the sense in which it was used by Erichsen, and under various appellations such as spinal concussion, railway spine, etc., is misleading and ought to be omitted from the nosology. Such terms are devoid of limitation; they do not define symptoms or pathological changes, nor do they lead to a prognosis. He maintains that functional as well as organic diseases of the nervous system may result from traumatism, as well as from the coarser lesions, such as fracture and hemorrhage. The functional group is by far the most important and has given rise to all the controversy which has led to the substitution of various names, for an actual study of the nervous conditions would have led to a clearer understanding of these cases. If the term spinal concussion is expunged from our nosology, we shall study these cases upon their actual merits, classifying them under hysteria, hypochondria, and neurasthenia if they fall in the functional group, and under the various types of organic disease if they are accompanied by gross alteration in the structure of the nervous centers. Such a division of the results following traumatism furnishes an accurate prognosis and a basis for estimating the disability. Attention is called to the undue importance which has been given to pain over the vertebral spines. In some way this symptom has come to be associated with an intangible change in the spinal cord, or alteration in its circulation. There is no evidence in support of such a view. Another point in reference to spinal pain, which has not received the attention it deserves, is the fact that contusions and sprains of the articulations of the spine are an important source of pain. The more than fifty articulations comprising the spinal column, each

lined with synovial membrane, cannot but be a fruitful soil for the development of chronic adhesive inflammations, which it will be impossible to detect because of the smallness of the articulations and their deep situation.

The author sums up a brief paper as follows: "That concussion neurosis in all its various appellations is an unfortunate and misleading term; that clearer understanding of functional nervous troubles renders such a term unnecessary; that pain and tenderness of the spine is rarely an evidence of change in the cord, but is usually due to fatigue of the spinal muscles, or sprains and concussions of the column; that most of the symptoms of spinal concussion, as the term is commonly used, are cerebral in origin; and that a correct diagnosis and prognosis may usually be reached by analyzing all such cases after the same manner that we do functional nervous troubles having their origin in non-traumatic causes."

Morbid Anatomy.—

A. P. Ohlnacher, in the *Cleveland Journal of Medicine* for June, 1901, gives a *résumé* of 130 autopsies made at the Ohio Hospital for Epileptics. In former issues of MEDICINE we have referred to various reports from this pathological laboratory, the first giving 18 cases and the next 25. Of the 130 autopsies, 73 were on males and 57 on females; 104 were adults and 26 children. The first group of patients includes the idiopathic major epilepsy, with or without dementia. In these the morbid anatomic features of the lymphatic constitution were disclosed. There were 71 in this group, or approximately 75 per cent of the whole. A second group includes the cases of infantile cerebral paralysis associated with epilepsy and imbecility or idiocy. These number 19, or 15 per cent of the whole. The third group includes 8 cases, or 6 per cent, which are to be classed as senile epilepsy; 6 cases are to be classed as syphilitic epilepsy, 3 of cardiac epilepsy, 2 of paralytic dementia, 1 each of alcoholic and uremic epilepsy, and 1 due to cerebral tumor. After dividing the cases in this way, there are 13 that were unassignable even after autopsy.

The wider experience of 130 autopsies confirms the writer's previously expressed opinion that there is a close connection between nervous diseases and the lymphatic constitution. Not every case of idiopathic epilepsy will give a pure picture of the lympathic constitution, as the latter is profoundly modified by age, the cause of death, and other conditions. In fact, the persistent thymus, general hyperplasia of the lymphatic glands, will be found only in children

and young adults who have died in ways peculiar to epileptics. In epileptics over 30 years of age, or in those dying of wasting diseases, the evidences of lymphoidism are only to be found in the narrowed arteries or the osseous deformities of rickets. Of the seventy-one cases, a large number were typical examples of the lymphoid constitution. The majority of these presented a gliosis, either diffuse or atrophic. He is strongly inclined to the opinion that intracranial pressure may have something to do with this. The second class presented a diversity of lesions, as might have been expected from the great variety of causes which produced pathological changes. The eight cases of senile epilepsy showed brain lesions of atrophic glioses from arteriosclerosis of the cerebral arteries, or having their origin in hemorrhage or softening.

Epigastric Pain.—

H. W. Bettmann, in the *Cleveland Journal of Medicine* for July, 1901, says that epigastric pain occurs in gastritis, ulcer and cancer of the stomach, and in hyperchlorhydria. It may occur in gastric syphilis and in malaria, and the relation of this symptom to the foregoing conditions is fairly well understood.

It is frequently not recognized that gall-stones and inflammation of the gall-ducts may lead to epigastric pain, which is often mistaken for gastric disease. The author regards it as probable that the majority of cases diagnosticated gastritis, accompanied by paroxysmal pains in the epigastrium, with prostration and collapse, are in reality cases of gall-stones and cholecystitis. In the epigastric pains due to gall-stones the attacks occur independently of the taking of food and come on without apparent cause. The writer lays it down as a rule that "gall-stones should be suspected whenever patients complain of regularly recurring, or paroxysmal, severe epigastric pain, coming on several hours after eating, and when a careful examination of the digestive functions of the stomach reveals no abnormality."

Epigastric pain is sometimes dependent upon spinal disease. Hilton describes a case of a young patient who had been treated for a long time for disease of the stomach, and was found to have a tuberculous process between the sixth and seventh dorsal vertebræ.

Epigastric pain may be produced by pelvic lesions, and more rarely by eye-strain. Such a diagnosis is usually arrived at by exclusion, namely, correct habits, regulating the diet, and increasing the amount of exercise effecting no improvement in the pain.

In chlorosis, epigastric pain of a gnawing or boring character,

increased by the ingestion of food, is sometimes found. In many respects it suggests gastric ulcer. There is an absence of nausea or vomiting, and normal or diminished acidity of the gastric juice. It is found that this sort of pain yields readily to the administration of Blaud's pill and Fowler's solution.

Arteriosclerosis is sometimes accompanied by epigastric pain. Elderly patients often complain of a cramp just below the ensiform cartilage, coming on usually after meals when any exercise is indulged in. Even slow walking suffices to rouse the pain, which ceases as soon as the patients stand still or sit down. The peculiarities of this pain are that it occurs in those of advanced years, is most pronounced in the two or three hours following the ingestion of food, and is not accompanied by local tenderness.

Syphilitic Fever.—

Thomas B. Futcher, in the *New York Medical Journal* of June 22, 1901, gives a history of three cases of syphilitic fever. In one the type was remittent and intermittent, and it began twenty-seven days before the appearance of the second eruption. The fever was ushered in by a chill, followed by sweating. In the second case the fever had the same type, and for weeks typhoid fever was suspected and the case was treated as such. The diagnosis was established by discovering periosteal thickening over the clavicles and by cessation of the fever after the administration of potassium iodide. A third case was that of a man aged 57, who twenty-nine years before coming under observation contracted syphilis, which was followed by definite secondary and tertiary symptoms. Eighteen years after the primary infection, while in good health, a sore developed in the popliteal space, and another on the hairy scalp. Under treatment these lesions cleared up. About two weeks before coming under observation some tenderness developed over the sternum and the left shoulder-joint. About the end of July the patient began to have definite recurring attacks of chills and fever, the temperature rising from 102° to 104° F. The chills were thought to be of malarial origin, and quinine was given in doses of twenty grains per day, without any effect on the fever. The examination of the blood showed no malarial parasite. The fever was thought to be of luetic origin, and iodide of potassium in increasing doses was given. This was followed by a cessation of the chills, but the evening temperature continued at 101° F. The patient remained in the hospital some time, and was later discharged recovered.

In all cases of fever of obscure origin, the possibility of its being

syphilitic should be borne in mind. Syphilitic fever is not infrequently mistaken for the acute specific fevers, it being most often confounded with malaria, typhoid fever, tuberculosis, sepsis, and occasionally rheumatic fever. Syphilitic fever may appear as early as four weeks before the appearance of the secondary skin eruption, or it may occur late in the disease after secondary manifestations have existed for years. The fever may be continuous, remittent, or intermittent: the remittent type is the most frequent. It is often associated with chills and sweating. A careful examination of the long bones and viscera, for evidences of tertiary syphilis, may clear up some fevers of obscure origin.

Stuporous Melancholia Lasting Three Years and Eight Months, Followed by Recovery.—

Cecil MacCoy, in the *Journal of Nervous and Mental Diseases* for July, 1901, describes a case which seems to be almost unique in asylum annals. The patient was 28 years of age, of intemperate habits, with a specific history. He was admitted to the asylum with a statement of the duration of this mental trouble of two weeks. From November, 1895, to September, 1896, the history was that of an ordinary melancholia. In the latter month he passed into a condition of stupor, refusing to leave his bed, or voluntarily to take any nourishment. He remained in this state until May, 1900. During all this period he was fed three times a day by a nasal tube, receiving at each meal a pint of milk, two eggs, some salt, and sugar. To prevent bed-sores his back was daily rubbed with alcohol, and several times during the day he was turned from his back to his right or left side. In May, 1900, he began to show signs of returning mental activity; occasionally he would open his eyes and wink for several minutes at a time, and shift himself about in bed to assume a comfortable position. The following month he sat up and ate a meal for the first time in three and a half years. Later he was dressed, and since then his condition has justified his discharge as recovered.

The Relation of the Typhoid Bacillus to the Blood.—

E. Maurel, in the May issue of the *Archives de Médecine Expérimentale*, has an interesting study on the relation of the leucocytes to the typhoid bacillus. He prepared slides containing typhoid bacilli mixed with distilled water, which were allowed to dry at a temperature of 38° C. Upon the same slide a few drops of blood freshly drawn were placed, the stage being kept at a uniform temperature of 37° C. A portion of the blood was then brought in contact with

the typhoid bacilli, while another portion was left free for comparison. In the portion of the blood in contact with the bacilli it was noted that the leucocytes moved about slowly, absorbing the bacilli. While perfect mobility of the leucocyte was secured by the method of preparation, it was not observed that there was any seeking of the bacillus by the leucocyte, but when brought in contact the leucocyte "swallowed" the bacillus. It was noted that after the leucocytes absorbed the bacilli their movements became less marked, and some were soon quite motionless and had become spherical in outline. An increase in the temperature of two or three degrees stimulated the leucocytes to renewed activity, but after a time they again became motionless. Within two hours all of the leucocytes which were exposed to the bacilli were motionless, spherical, and in many instances presented granular protoplasm, a stage which precedes the dissolution of the corpuscle. The red corpuscles were not affected. The leucocytes which were kept free from the typhoid bacilli, under the same conditions, were quite active at the end of one and a half hours. The conclusions of the writer are to the effect that the leucocytes absorbed the typhoid bacilli, but were themselves destroyed. The toxins formed by the typhoid bacillus have no effect upon the leucocytes. Those leucocytes which absorbed typhoid bacilli alone succumbed, while those which were merely brought in contact with the culture, in case they had not absorbed any of the bacilli, remained active and vigorous.

Leprosy in Cuba.—

L. T. Frank has recently made an investigation of leprosy in Havana (*Milwaukee Medical Journal*, June, 1901). The Hospital San Lazaro is located in the northwestern part of the city. It was founded in 1681 by Pedro Alegre, whose son suffered from leprosy. Thirty-five years later Philip V. ordered the erection of a hospital, and for its maintenance established an anchorage tax of three dollars on each vessel putting into the harbor.

At present the number of lepers in the hospital is 102, the largest proportion of whom came from the Canary Islands, Asia, and Cuba. In eighty-three of the cases the disease began between the ages of ten and thirty years; the male patients number eighty-three and the female twenty-nine. The tubercular form of leprosy constitutes 25 per cent of the cases. The non-tubercular form is the more common variety, the mixed being exceedingly rare. A large number of the cases present more or less grave lesions of the eyes, the most frequent being a keratitis, which began at the border of the cornea.

SURGERY.

Prolapse of the Rectum.—

James P. Tuttle, in the *International Journal of Surgery* for June, 1901, in discussing the treatment of prolapse of the rectum, says that the lower portion of the rectum is attached to muscular and fibrous tissues surrounded by cellular spaces, which are filled in with fatty elastic tissue. The upper portion of the rectum is held in position by a fold of peritoneum which crosses diagonally downward and forward over the intestines, to be reflected upward over the uterus in women and over the bladder in men. For prolapse of the rectum to take place, one or the other of these supports must yield. When the prolapse begins in the lower portion of the rectum, it is always due to some relaxation of the muscular or fibrous parts. This latter form is most frequent in old people and children. The relaxation of

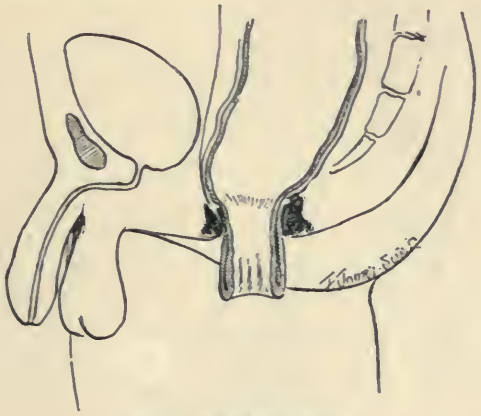

FIG. 1.—Partial prolapse.

the sphincter in this class of cases contributes to the ease with which prolapse occurs. Rickets and the disorders of childhood favor prolapse. When the prolapse begins in the upper portion of the rectum it is due to elongation of the active supports and stretching of the mesorectum and the lower peritoneal folds.

The treatment of these two classes of cases is very different; in those in which the prolapse is due to a want of muscular tone and absence of fatty cushions surrounding the lower portions of the organ, it is only necessary to restore these or to furnish some artificial support.

In any operation upon the rectum for prolapse, first determine

whether it is complete or incomplete. In the incomplete variety the mucous membrane and a certain portion of the submucosa are prolapsed (Fig. 1). In these cases the folds of mucous membrane run longitudinally up and down the long axis of the gut. In cases of complete prolapse the folds run circularly around the long axis.

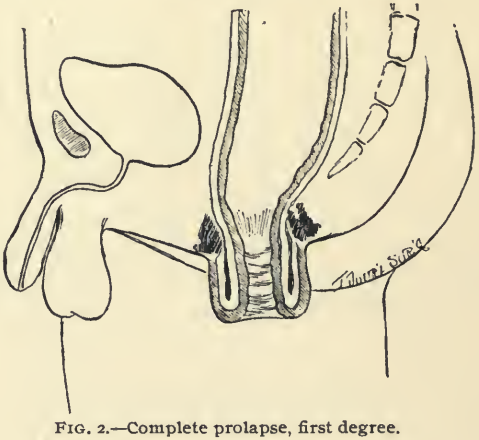

FIG. 2.—Complete prolapse, first degree.

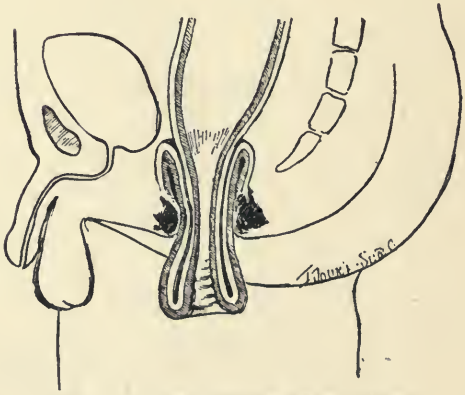

FIG. 3.—Complete prolapse, second degree.

Complete prolapse has three degrees. In the first the prolapse begins at the margin of the anus and extends outside to a variable degree. The mucous membrane of the prolapsed gut is flush with the skin about the margin of the anus, leaving no sulcus or depression between them (Fig. 2). In the second degree it begins at a point more or less above the margin of the anus. That portion of the gut between the point of the beginning and the margin of the anus remains *in situ*, while that part above this point protrudes

through the anus (Fig. 3). The third degree of prolapse (Fig. 4) is practically an intussusception. It does not protrude, but forms an obstruction which causes great distress. In the first two of these varieties the condition is one in which the lower or passive supports of the rectum are involved. In the third variety the upper or active supports are weakened.

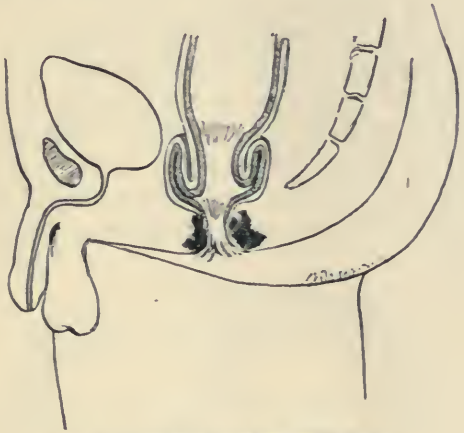

FIG. 4.—Complete prolapse, third degree.

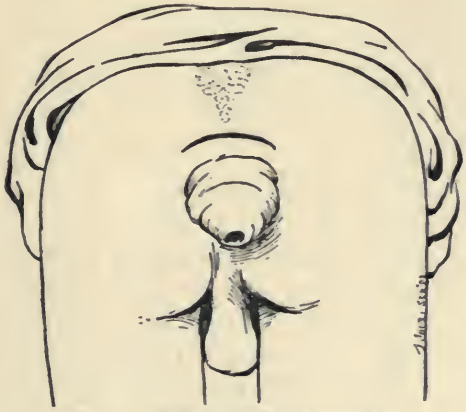

FIG. 5.—Incision in author's operation.

In the treatment of the incomplete variety, which consists simply of prolapse of the mucous membrane of the lower end of the rectum, the segments of mucous membrane may be clamped and removed by the cautery. The clamp should be applied in the long axis of the gut, and the resulting cicatrices pull the mucous membrane upward. The Whitehead operation may also be employed to remove this con-

dition, but in the hands of an inexperienced operator it may result in stricture due to attaching the mucous membrane to the underlying sphincter. In the clamp and cautery method there is very little danger of including anything but mucous membrane.

In the treatment of complete prolapse the entire wall of the rectum is involved, and the clamp and cautery methods are not applicable. In a few cases deep cauterization carried down to the muscular layer may result in improvement, but in these ordinary strapping, combined with tonic treatment, may be quite as efficient. Where the walls are greatly thickened they may form such a mass that any ordinary cauterization will not furnish sufficient support; the latter cases are often associated with stricture, and any operation which does not deal radically with this complication is not likely to be successful. With stricture the only practical treatment is excision.

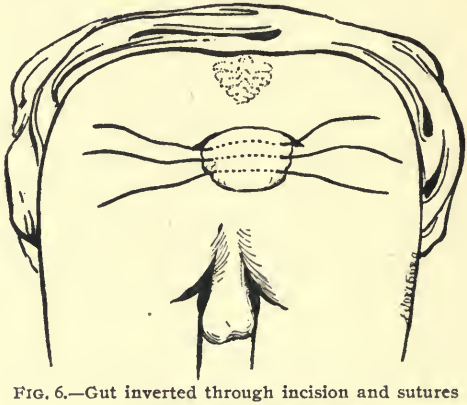

FIG. 6.—Gut inverted through incision and sutures introduced into its muscular coat.

In complete cases of prolapse the author has devised the following operation: A semicircular incision is made midway between the anus and the coccyx, through the ligments of the external sphincter, dividing the coccygeal and levator ani muscles and extending into the retrorectal space (Fig. 5). With the fingers or a blunt pair of scissors the rectum is separated as high up as the distance which it protrudes over the anus. With the dull curette the fatty and cellular tissues are scraped from the anterior surface of the sacrum. The prolapse is then reduced, and an assistant's finger carried through the anus inverts the gut, bringing it out through the incision between the anus and the coccyx (Fig. 6). It is then held in position by silkworm-gut sutures passed through its muscular walls, care being taken not to penetrate the mucous membrane.

The sutures are placed about one-half inch apart, the ends being left loose. After all the sutures have been introduced (Fig. 7) the highest is threaded upon a long curved needle and brought out at the highest point of the separation made between the sacrum and the rectum. The other end of the suture is treated in a like manner, and the lower sutures in their proper order. Now the sutures

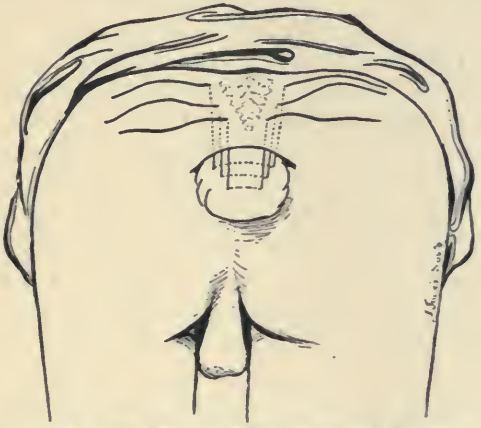

FIG. 7.—Loose ends of sutures carried up through the retrorectal space and brought out on each side of sacrum.

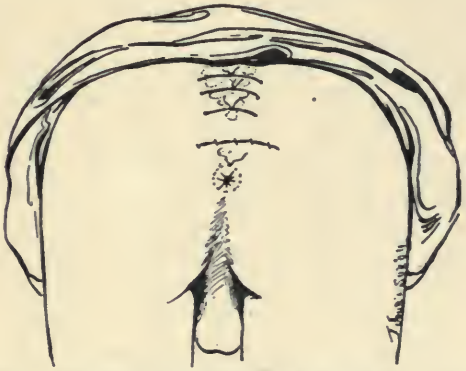

FIG. 8.—Sutures tied over sacrum, wound closed. Purse-string buried suture around anus.

are tied over the sacrum (Fig. 8). This carries the rectum upward into the hollow of the sacrum, holding it in close apposition with the periosteum covering this bone. The sutures are tied across the sacrum over a strip of iodoform gauze; if no irritation is produced they are left for about ten days. The author has operated in nine cases, five of which were old and very chronic. The most of these

cases were followed for a period of over three years, and in only one was there recurrence.

This operation is not applicable to cases of prolapse beginning high up in the peritoneal portion of the rectum. In these cases the sigmoid should be sutured to the abdominal wall.

Nitrous Oxide and Oxygen as a Surgical Anesthetic.—

S. O. Goldan, in the *American Journal of the Medical Sciences* for June, 1901, says that nitrous oxide anesthesia can be maintained for long operations, with perfect safety to the patient, if it is combined with oxygen. If ordinary air is used to dilute the nitrous oxide the patient of necessity must be partially asphyxiated, the same as he is when nitrous oxide is administered alone. In using ordinary air as the diluent of the nitrous oxide, we are using a gas 80 per cent of which is inert nitrogen. This means that any mixture of ordinary air with nitrous oxide that is given to a patient must have a suspension of the anesthesia at intervals to permit him to obtain sufficient oxygen. The result is that prolonged anesthesia with such a mixture means that it is a mere succession of asphyxiations. If the inert nitrogen is eliminated, a prolonged anesthesia can be obtained from a mixture of nitrous oxide and oxygen, the latter gas existing in a proportion of about 10 per cent without any asphyxia. This shows that nitrous oxide has pure anesthetic properties. The same percentage of oxygen and nitrous oxide must not be employed in all cases, nor, indeed, throughout any one anesthesia. The writer describes a Y-shaped pipe connected with the nose and mouth and containing a valve by which the amount of oxygen in proportion to the nitrous oxide can be accurately regulated. An account of one hundred narcoses is given, including various operations in which the anesthesia lasted more than one-half hour. In three of these the duration of the operation was more than two hours.

Prevention of Acute Peritonitis Following Appendicitis.—

A. J. Ochsner, in the chairman's address before the Section of Surgery and Anatomy at the last meeting of the American Medical Association (*Journal of the American Medical Association*, June 22, 1901), reaffirmed his treatment of appendicitis. The wider experience of recent years has confirmed views somewhat at variance with those of many surgeons. The peristaltic motion of the small intestines is the chief means of carrying the infection from the perforated or gangrenous appendix to other portions of the peritoneum, thus changing a circumscribed into a general peritonitis. This can be

prevented by prohibiting all food and cathartics, and by the prompt removal by lavage of such remnants of food as may be found in the stomach. In case food is required, it should be administered by enemata and should be given not oftener than once in four hours, and not more than four ounces at a time.

It is claimed that such a treatment, instituted early, will change a violent acute perforative or gangrenous appendicitis into a mild and harmless form. Cases of appendicitis with beginning general peritonitis can be generally carried through an acute attack by this method. In all cases gastric lavage should be practiced to prevent the absorption of the decomposing material from the alimentary canal.

The patient should be permitted to recover fully from an acute attack before an operation is performed, except in cases which come under observation in the first thirty-six hours, or in those in which there is a superficial, circumscribed abscess. Such a management of the cases as is here described does not protect the patient against a subsequent attack, and does not complicate the early removal of the diseased appendix before the septic material has extended beyond this organ. It is indicated in all intra-abdominal conditions in which septic material may be distributed through the abdomen by peristaltic motion.

Trigger-finger.—

E. Noble Smith, in the *Clinical Journal* of May 1, 1901, reports a case of this affection in which the contracted sheath was exposed and stretched and the patient cured. This disorder is commonly described in American literature as trigger-finger. Smith writes of it under the term spring-finger. It is known to the French as the *Doigt a Ressort*, and to the Germans as the *schnellender finger*. It consists of a partial obstruction to the free flexion of a thumb or finger, occurring at a particular joint, the difficulty being presently overcome and the flexion or extension completed with a snap. The obstruction generally occurs at the metacarpophalangeal articulation. No special cause of the difficulty is known, but it is believed that rheumatism is a factor in its production. In some cases the affection is congenital, but the majority of cases occur in middle life and some in old age. The middle finger is most often affected, then the ring finger, then the thumb or little finger, the least often being the forefinger. In some cases the affection is symmetrical, but the right hand is more often involved than the left.

A young woman, 18 years of age, was seen by the writer October

4, 1899. In the previous January, after arduous practice with a mandolin for three months, this condition developed in the ring finger of the left hand. Her mother had been troubled with the same condition to a slight degree for a number of years, the middle finger of the right hand being affected. On examination, nothing abnormal was noted in the tendon nor in its neighborhood. Upon cutting down upon the tendon no enlargement was noted, but upon passing a probe into the sheath it was found to be narrowed. A blunt hook was introduced into the contracted fascia, and it was forcibly stretched. The operation resulted in a perfect cure of the condition; once only, about three weeks later, was there a slight trigger flexion, but since then the movements of the digit have remained normal.

Auscultation of the Mastoid.—

A. H. Andrews, in *The Laryngoscope* for June, 1901, describes a new method of examining the mastoid. A stethoscope having a small bell-shaped opening is placed over the tip of the mastoid, and a tuning-fork which has been set vibrating is placed in the region of the antrum. In cases of mastoid disease, in which the cells are filled with exudate or pus, it is found that the intensity and duration of vibration of the fork are lessened. His experience extends to an examination of about 200 normal mastoids and twenty-six cases of disease of this structure. The average length of time that the fork could be heard was about eighteen seconds, but there is no absolute rule to give in this respect, as personal experience must be had in the use of a particular stethoscope; in some cases the conducting power of the instrument is greater, and in some less. Care also should be exercised not to place the skin upon the stretch, as this increases the length of time and the loudness with which the fork can be heard.

By this method the floor of the middle fossa can be located and the mastoid determined. The bell of the stethoscope is placed over the lower part of the mastoid, and the handle of the vibrating tuning-fork is moved downward over the squama. As soon as the upper border of the mastoid is reached a decided increase in the sound of the fork is noted.

The lateral sinus is located in the same manner, except that the stethoscope is crowded close to the attachment of the auricle and the tuning-fork is carried from behind forward, until increase in the sound is noted, which occurs when the fork reaches the posterior border of the mastoid. In two recent operations the lateral sinus

and the floor of the middle fossa, as indicated by this examination, were found to have been correctly determined. It is not contended that this method of diagnosis should displace other methods of examination, nor is it necessary in cases in which antral disease is well marked, but it will be useful in doubtful cases.

Decortication of the Lung for Chronic Empyema.—

G. R. Fowler, in the *Medical News* of June 15, 1901, describes under the above title an operation by which the thickened pleura is removed from a lung, which in consequence of a pleural exudate has been more or less collapsed. His first experience with this method of treating cases was in 1893. It is adapted to old empyemas where there is no tuberculosis of the lung and the patient has sufficient strength to withstand a major operation. It is a better operation than Estlander's, as by it there is a restoration of the function of the lung and a closure of the suppurating cavity. In the operation the diseased pleural membrane is dissected away, not only that which covers the lung, but that portion lining the wall of the thorax and covering the diaphragm. The operation should be made as thorough as possible, and to this end a large opening in the chest is necessary. It should be so made as to admit of rapid closure after the operation, as this facilitates expansion of the lung, which is brought about by respiratory movements. Respiratory exercises should be employed in the after-treatment.

A Needle for Silver Wire.—

L. J. Y. Gemella, in the *Philadelphia Medical Journal* of June 22, 1901, describes an improvement in a needle with which to use silver wire in suturing. Every one who has threaded silver wire into an ordinary needle, and is familiar with the difficulty with which the double strand in the eye of the needle is drawn through the tissues, will appreciate this improvement. It consists of a hollow end to the needle which is removable, being attached to the curved portion of the needle by a thread. In preparing the needle for use the hollow cap is unscrewed, the wire is slipped through the opening and pinched with an artery forceps so that it will not come out. The needle is then screwed into place. Such a needle may be drawn through the tissues without trauma, as the point where the wire is attached is actually smaller than the shaft of the needle. Such a needle, the inventor thinks, will be especially useful in obstetrical work, as it can be threaded and placed in an aseptic solution and carried in the obstetrical bag.

THERAPEUTICS.

Toxicity of Acetanilid.—

S. E. Earps, in *Merck's Archives* for June, 1901, says that acetanilid has toxic properties which are often exhibited when the drug is given in small doses, but not with sufficient severity to require treatment. In other cases symptoms become so severe that a fatal result may be imminent, unless prompt treatment is employed. Unfortunately this drug has been widely advertised as a universal analgesic, and a large number of remedies for the relief of pain, under catchy titles, contain this drug as an essential ingredient. Fifteen grains is commonly considered the maximum dose, yet he has seen one-third of this quantity produce alarming symptoms. Authors have occasionally advised that three grains be given each hour, but he has seen patients reach the danger line long before the maximum quantity was given in this way.

He cites the case of a patient who had taken four headache powders. He was hastily summoned with the statement that the woman was turning dark. The headache powder had been taken each hour, beginning at nine o'clock and ending at noon. The surface of the body presented an ashen-gray appearance, the mucous membranes having a much darker hue. The temperature was 96°, pulse 60, and respirations 10. Digitalis, strychnine, and alcohol baths with friction were employed, with dry heat to the surface. When the patient was able to swallow, a combination of aromatic spirits of ammonia, brandy, and capsicum was given. Twenty-four hours later the temperature was slightly subnormal, the dusky appearance of the face disappeared to a large extent, but the symptoms of cyanosis did not wholly vanish until the second day. The powders contained three grains of acetanilid, two grains of bicarbonate of sodium, and one grain of caffeine; hence the total dose was twelve grains of acetanilid.

Under no circumstances should acetanilid be administered alone, but always guarded by a cardiac stimulant. The intervals between doses should not be too short.

The Dietetic Treatment of Epilepsy.—

Rudolf Balint, in the *Berliner Klinische Wochenschrift* of June 10, 1901, gives an account of his experience with the diet which has been recommended by Toulouse and Richet. This diet is based upon the theory that as the amount of chlorides is lessened in the

system, the effect of bromides is increased. The diet which the writer employed in the treatment of twenty cases consisted of milk 1000 grammes, meat 300 grammes, potatoes 300 grammes, bread 200 grammes, sugar 50 grammes, butter 40 grammes, coffee 10 grammes, two eggs. The food was cooked without the addition of salt, and one to two drachms of bromide of potassium was given each day. Under this treatment there was a marked diminution of the convulsions in all of the cases, and in many they disappeared entirely. It was found that the amount of chloride of sodium in the diet as first employed was considerable, and consequently the reduction of chlorine in the organism was not very rapid. The diet was then changed to 1 to 1½ liters of milk, 40 to 50 grammes of butter, 3 eggs, 300 to 400 grammes of bread and fruit. Such a diet approximately equals 2300 to 2400 calories. It was found difficult for patients to take meat that had been cooked without salt, and bread which was prepared without salting was also unpalatable. The latter was obviated by salting the bread with bromide of potassium, the latter acting in every way as an excellent substitute for the chloride of sodium. The results in twenty-eight cases that remained for some little time under treatment were: in nine recent cases the attacks disappeared in seven, and in nineteen chronic cases in fifteen; in the remaining six cases the attacks continued, but their intensity was lessened.

Sugar-free Milk as a Food for Diabetics.—

Robert Hutchison, in *The Lancet* of June 22, 1901, says a difficulty in practice is in providing a patient suffering from diabetes with a diet free from carbohydrates and which can be taken for a long time. The nutritive constituents must consist largely of proteid and fat, but when carbohydrates are taken out of the diet it is difficult to replace them by sufficient fat. Fat in the form of bacon is palatable, and more or less fat can be added to meat and fish. Butter is difficult to administer, except when taken, as is commonly the case, with carbohydrates. This difficulty in the ingestion of fats is met by separating the sugar from milk, thus furnishing a food rich in proteid and fat, but without a carbohydrate. Mr. Morris, chief dispenser to the London Hospitals, has prepared a very perfect milk in which sugar has been removed, which resembles a rich specimen of ordinary milk. It can be administered plain, or with some effervescing water, or added to tea, coffee, or cocoa. With eggs it can be made into a custard, thus adding a palatable and agreeable food to the limited range permitted the diabetic. Sugar-

free milk contains approximately three per cent of proteid and five per cent of fat. If three pints are taken in a day, the food value amounts to 990 calories, or nearly one-third of the total amount required, while the amount of fat which the patient obtains is equivalent to fully three ounces of butter. In cases in which a small amount of carbohydrate is desirable, it is sometimes best to substitute sugar-free milk, and give carbohydrates in the form of potatoes or bread, as this enables the patient to ingest a larger amount of fat.

A Simple Electric Light and Heat Bath.—

F. C. Eve, in *The Lancet* of May 18, 1901, describes an apparatus which consists of three thirty-two-candlepower electric lamps mounted on an aluminum base and protected by a wire cage from contact with the skin of the patient or the blankets forming the walls of the chamber. A flexible wire connects the apparatus with a socket of the electric light supply of the house. The apparatus may be used to heat a single limb or the whole body. The limb, the apparatus, and the thermometer are all placed together in a chamber formed of several blankets thrown over an improvised cradle. The limb is covered with a single layer of lint to prevent scorching a tender skin. The temperature of the chamber rises in from fifteen to thirty minutes to from 200° to 250° F. The limb sweats copiously and a general perspiration is induced. As a rule the body temperature rises two or three degrees, especially when the whole body is treated. Frequently the part has a mottled erythema, which is transitory. Even in the most obstinate cases pain subsides at the end of an hour, and generally it does not recur for several days. Practically it is claimed that from this small apparatus as much benefit is derived as from the more elaborate contrivances now in use. He has employed this form in eight cases of rheumatoid arthritis, in all of which pain was severe and deformity marked. The ages ranged between six and sixty years. In some of the cases a point was reached in the amelioration of the disease after which no further improvement was obtained. A history of these cases is given, and it is stated that the cases were in no sense selected.

Anesthesia of the Skin by the Topical Application of Cocaine.—

Willard P. Beach, in the *Brooklyn Medical Journal* for July, 1901, says that it is commonly believed that cocaine has little or no anesthetic properties when applied to the unbroken skin. He has demonstrated that this dictum is not correct, for if a 40-per-cent

freshly prepared solution of cocaine is applied from one to one and a half hours to the unbroken skin, there results a local anesthesia. He describes a circumcision which was accomplished without pain by the simple external application of a 40-per-cent solution of cocaine. Before the operation the parts were carefully cleansed of all sebaceous and oily matter, and then well dried after the thorough use of an antiseptic. Then a solution of cocaine was applied to the line of incision by means of a pledget of absorbent cotton. The saturated cotton was kept in contact with the parts for twenty minutes, when it was removed and the part allowed to dry for ten minutes. The cocaine was then reapplied, and this was continued for from one to one and a half hours. The skin may be quite as effectually anesthetized by this method as by hypodermic injections of cocaine, it only being necessary to keep the solution sufficiently long in contact with the parts. After such an application of cocaine numbness will persist in the skin for from four to five hours.

Phenol in Dermatology.—

Jay F. Schamberg, in the *Therapeutic Gazette* of June 15, 1901, says that carbolic acid has so long been employed as a topical application that internally it has fallen into disuse. In psoriasis it is an excellent remedy and can be administered in pill form for long periods. The dose may vary from five to ten drops, the latter considerable quantity very rarely causing irritation of the kidneys. Carbolic acid internally is especially useful in chronic psoriasis where the patches are not much infiltrated. If administered in solution, the following prescription is useful:

℞ Acidi carbolici ..... ʒ iij.
Glycerini ..... f ʒ j.
Aquæ destillat ..... f ʒ v.

S.: One drachm in a large wineglass of water, before meals.

Carbolic acid is useful in pruritus, especially of the generalized form. It is given internally in from one- to four-grain doses dissolved in sherry wine and glycerin. It is possible that it acts in pruritus by being eliminated through the sweat glands. Its antifermentative and antiseptic action in the intestines may overcome certain forms of autointoxication to which the pruritus is due.

Treatment of Intestinal Hemorrhage in Typhoid Fever.—

According to a correspondent of the *Therapeutic Gazette* of June 15, 1901, Professor Mathieu, one of the most eminent specialists on stomach affections in France, has been successful in treating the

intestinal hemorrhage in typhoid fever. The patient is kept quiet, no cold baths are given, but if it is necessary to reduce the temperature the patient is placed in a cold pack. All food is kept from the patient, and opium is administered to secure complete rest of the intestines. Every morning an enema of a quart of water is given at a temperature of 46° C., in which is dissolved from three to four grammes of chloride of calcium, and at the same time from one to three drachms of this salt is given by the mouth. Enemata are found to be useful in these cases, as they remove coagulated blood. The treatment in eight cases gave excellent results. Associated with the treatment is the administration of bismuth in sixty-grain doses repeated three times a day. This latter is one of the most efficient and least irritating of drugs given as an intestinal antiseptic. The oversaturation of the blood with chloride of calcium leads to a lessened coagulability, hence the importance of limiting the dose to the quantities stated.

Treatment of Cancer of the Uterus by the Chlorate of Sodium.—

L. Boucher (*Journal de Médecine*, June 9, 1901) has employed chlorate of sodium internally in the treatment of cancer of the uterus. It is given in 20-per-cent solution flavored with syrup of orange flower, about thirty grains being given at a dose. At first there is some difficulty in accustoming the stomach to the medicine, but there is early established a gastric tolerance. In addition to the internal use of the remedy, a powder composed of ten parts of chlorate of sodium, ten parts of subnitrate of bismuth, and five parts of iodoform is mixed and used upon a tampon placed in contact with the cervix. Patients with a marked idiosyncrasy to iodoform must have this drug omitted.

The results observed in the treatment of cancer of the uterus are a disappearance of the hemorrhage and the fetid discharge in a few days. At the same time the injections of morphine, which have heretofore been necessary, can commonly be dispensed with. The ulcerated portion of the cervix heals, the appetite returns, and the strength of the patient improves. Naturally the remedy is only to be looked upon as palliative, but it tends greatly to delay the inevitable fatal termination.

Gelatin Solution in the Treatment of Aneurisms.—

Henri Grenet and G. Piquard, in the *Archives Générales de Médecine* for June, 1901, conclude an exhaustive article on the use of gelatinized serum in aneurism. According to some authors this

method is only applicable to sacculated aneurisms, while others say that it favors coagulation in the fusiform variety. The injections are often followed by fever and pain, probably due to the gelatin. The possibility of extensive coagulation and of embolism as the result of the treatment has not been positively demonstrated. The injections may cause an increase in vascular pressure and consequently a giving way of certain aneurisms of large size, whose walls are very thin. The number of cases so far treated, and carefully observed for a considerable period, is insufficient to come to a definite conclusion as to the value of the method. The clinical observations so far made do not permit of an exact estimate of the value of the treatment. It has been proven that gelatin injected under the skin is absorbed, but as to the form in which it is taken up no experiments have been made.

OBSTETRICS, GYNECOLOGY, AND PEDIATRICS.

Saline Infusions in Eclampsia.—

Robert Jardine, in *The Lancet* of June 15, 1901, says that in eclampsia some substance circulates in the blood possessing toxic properties. Of the nature of this substance we know little, but it is evident that the successful treatment of the condition requires that it be promptly eliminated. If we were able to keep all pregnant women under observation and treat all cases of albuminuria by milk diet, eclampsia would be practically unknown. Many cases, however, come under observation after the convulsions have developed, and then there is little chance to help them.

The functions of the alimentary canal are largely in abeyance, and to move the bowels very large doses of medicine are needed. The best cathartic in such cases is Epsom salts given through a stomach-tube, unless the patient is able to swallow. Prompt action of the skin can be secured by a hot pack or steam bath. Diuretics by the mouth cannot be depended upon. Notwithstanding the contention that normal saline solution has no diuretic properties, he is convinced that it does stimulate the action of the kidneys, the latter power being most pronounced if to it is added a small quantity of acetate of soda or bicarbonate of potassium. Not only do we have this action on the kidneys, but normal saline solution delays the action of the poison and stimulates the patient just as it does in septic cases.

Infusions are given under the breast or into the abdominal wall,

using for this purpose Potain's trocar. From one to three pints may be employed. In the Glasgow Maternity Hospital the death-rate from older forms of treatment was 47 per cent; since infusions have been employed the death-rate has fallen to 24 per cent.

An analysis of the writer's twenty-two cases shows that seventeen were primiparous and five multiparous. One-half of the labors were at full time, and in only one case did the fits begin during the puerperium. Thirteen of the children were born dead and ten alive, there being a case of twins among the latter. Of the dead children, two were macerated, three were delivered by craniotomy, and three were too premature to live; so of the twenty-three children, only five were lost which might possibly have been saved. Of those born alive, one was premature and only lived two hours. Of the twenty-two mothers, three died, but one of the deaths was due to a perforating duodenal ulcer, after recovery from the eclampsia. Even counting that as a fatal case, three deaths in twenty-two, or 13.64 per cent, is certainly a very low death-rate. The first patient who died showed double pneumonia, multiple ulcers in the stomach, and patches of congestion throughout the intestines. She was treated with morphine, and during the forty-four hours she was in hospital neither the bowels nor the kidneys acted. She only excreted 11½ ounces of urine during the whole time. The second fatal case was the one with the duodenal ulcer. The third patient was delivered by craniotomy. The true conjugate measured 3½ inches. As the child was dead, craniotomy was performed at once. The treatment has lowered the hospital death-rate from eclampsia by about 50 per cent, and has saved more children than the older methods.

The Early Recognition of Ear Disease in Children.—

MacLeod Yearsley, in *Pediatrics* of June 1, 1901, says that since the days of Meyer, of Copenhagen, there has been a great improvement in the certainty with which the profession recognizes adenoids as factors in the deafness of childhood. Still there are some who do not recognize these growths, and the repeated attacks of inflammation to which they give rise, until there is thickening of the ear drum, when ordinarily recovery is out of the question. Whenever the drum shows a marked loss of transparency and a dulness which resembles ground glass, it is almost certain that the case has gone too far for a recovery or even improvement. Then it is only safe to promise that the removal of the adenoids will improve the general health and stay the progress of the deafness. The sooner the loss of hearing is ascertained the better. As a rule, if children are slow

in learning to talk, this is by no means an indication of defective hearing. Mental defects may simulate deafness, and must be excluded. If the first two years of life are passed without the acquirement of one or two simple words, it is probable that there is defect in hearing. The early recognition of these defects is most important, and it is better to resort to an examination under chloroform than to risk a possibility of the trouble becoming permanent. Discharges from the ears in children are always significant, and earache is of almost equal importance. The ear may offer an explanation of many a puzzling febrile attack in children. The pain in the ears may be described as of two kinds—inflammatory and non-inflammatory. The latter is rare; it is seldom that an earache in childhood is neuralgic. Even in young children the raising of the hand to the ear, or their turning uneasily from the affected side, or tenderness of the ear which is apparent upon washing, may afford an indication of the site of the trouble. In every case of doubt examine the ear.

A "cold in the head" in a baby nearly always affects the lymphoid tissue in the vault of the nasopharynx, and accounts for the frequency of inflammation in the middle ear in early life. Such inflammations may give rise to meningitis, but more frequently simulate that disease. The extensive relation of the ear to intestinal diseases was pointed out by Hartmann, who stated that loss of weight and elevation of temperature should always lead to an examination of the ears. He regarded the intestinal disturbances as a result of the absorption of toxins from the tympanic cavity.

Eclampsia and the Thyroid Gland.—

H. O. Nicholson, before the Edinburgh Obstetrical Society (*The Lancet*, June 29, 1901), said that the blood during pregnancy is increased in volume, with a deficiency of the solid constituents of the serum leading to a lower specific gravity. The red blood-corpuscles and albumin are relatively diminished, while the number of white corpuscles is increased. In these respects it resembles the blood changes which follow removal of the thyroid gland. In eclampsia there is always a toxemia, but it is by no means certain that the toxic agent is the same in all cases. We do not know where these toxins are formed, but it is reasonable to suppose that the fetus plays an important part in their production. A checking of elimination by the kidney will result in the development of eclampsia; therefore the whole question of causation and treatment turns upon the mechanism of this arrest of renal excretion.

In pregnancy there is an increase of the thyroid gland, and Lange noted that out of twenty-five pregnancies in which this hypertrophy of the gland did not occur, twenty had albuminuria. In cases where there was a marked enlargement of the gland it could sometimes be reduced by the administration of desiccated thyroids, showing that this artificial supply of the gland product relieved the functional activity of the thyroid.

The history of a case is given, a woman in a third pregnancy, who had suffered from eclampsia in her two previous pregnancies. In the sixth month the urine was normal, but a month later it contained albumin, and she complained of frontal headache, giddiness, dimness of vision, and there was marked general edema. She was put on a milk diet, confined to bed, and given a diuretic mixture. In the eighth month she had a fit, which was treated with bromidia and chloral. The urine at this time was scanty and the albumin so abundant that upon boiling the whole quantity solidified. Sphygmographic tracings showed a contracted vessel and a pulse of high tension. The following day thyroid tablets were given, at first two and afterward three a day. In three weeks she was able to engage in household work, the urine was normal in quantity, and contained no albumin. Twelve days later labor occurred and was terminated without difficulty. Thyroid extract has a diuretic effect in many diseases of the kidney, though its action on the kidney in health is negative. It is possible that this is due to the lowering of arterial pressure and the dilatation of the peripheral arterioles.

Traumatic Zona.—

R. Millon, in the *Archives de Médecine des Enfants* for July, 1901, reports two cases of traumatic zona. This condition was described as early as 1849 by Rayer; another case was published by Charcot in 1859. Since then there have been a few references to it in the literature, though it still remains a rare condition. The peculiarity of the eruption is that it occurs in the region of a nerve which has received a traumatism; it is not accompanied by fever or other signs of infection, nor the general phenomena which commonly accompany zoster due to other causes.

The first patient was a girl 11 years old, who struck a table while running, the blow impinging on the anterior part of the thorax. For a moment the pain was severe, but it soon passed away. Three days later the part became red, and a crop of herpetic vesicles appeared, surrounding the place where the blow had been received. Five days later the eruption had spread so that it reached

from the sternum in front to the spine behind. At this time the vesicles which first appeared had dried down. The lesion appeared with the usual sensations of burning and pricking, and the sleep was disturbed one night. There was no fever nor general symptoms.

A second case was that of a girl 13 years of age, intelligent and of a nervous temperament, who was seen for an eruption on the arm. It followed a fall, the blow being received on the outside of the arm midway between the elbow and shoulder. The immediate effect was a severe pain, which gradually disappeared. Two days later there appeared in the region of the traumatism a vesicular eruption which generalized itself over the entire outside of the arm. The skin was red, hot, and a trifle swollen. The vesicles were grouped in rows, and some were isolated. The eruption did not extend above the shoulder nor below the elbow. There was no fever, no gastric disturbance, and the pain was not especially intense.

The Treatment of Scarlatinal Nephritis.—

C. G. Kerley, in the *Medical News* of June 16, 1901, says that if every case was treated with reference to the possibility of this complication, the deaths from scarlet fever would be very much less. A child is not to be considered well when the rash is gone and the temperature falls, as the danger line cannot be said to be passed until five or six weeks have elapsed. When nephritis develops it must not be overtreated, and above all it must not be managed upon the same lines as we do an ordinary nephritis in adults; repeated purgings, sweatings, and promiscuous drug-giving, including digitalis as a routine measure, have no place in the treatment of scarlatinal nephritis. The patient should be kept upon milk, broths, and thin gruels. Calomel should be given in one-tenth-grain doses until one grain is administered, the dose being repeated every third or fourth day. In the intervening days citrate of magnesia may be used as a laxative. The writer has been very successful with aconite given in one-fourth-minim doses every two hours. Hot air, which may be generated by an ordinary kerosene lamp to which is attached a funnel, is a rapid and efficient means of producing diaphoresis. In lieu of the latter a hot pack may be employed, at a temperature of 108° F. Flushing the colon with hot water is the most important means of restoring the kidney function; it may be used when the urine first becomes scanty. For a child three years of age, sixteen to twenty ounces of normal salt solution at 110° F. is introduced into the colon by means of a long rectal tube;

a pint to a pint and a half will generally be retained. After from three to five injections the kidneys usually begin to act. The child must be kept in bed until the urine has been normal for two weeks.

Pelvic Massage in Gynecology.—

Louise Southgate, in the *Cincinnati Lancet-Clinic* of June 29, 1901, says that several different methods of pelvic massage have been advocated, but they may generally be divided into two types: those in which the manipulations are through the abdominal wall, and those in which bimanual massage is used, the uterus and appendages being supported by one hand in the vagina. A combination of abdominal and rectal massage has also been employed. As taught by Thure Brandt, pelvic massage is neither painful nor dangerous. He always employs the abdominovaginal and rectovaginal forms. In the former the vaginal finger is placed in the cul-de-sac, and very slight pressure is made upward, while the abdominal hand "masses" with slight rotary movements. It is admirably assisted by the gymnastics which he employs, which consist of a voluntary contraction of the muscles of the abdomen against resistance. The writer has employed pelvic massage in thirteen cases, and has had abundant opportunity for observing its application in the gynecological clinic of Auvard at Paris. Under its use pain and soreness in the pelvis is rapidly relieved, exudates are absorbed, and adhesions are broken up. Subinvolution is reduced and enlarged fibrous ovaries are diminished in size. In lax vaginal walls and retroverted and prolapsed uteri without complications the results have been excellent. In cases of dysmenorrhea of many years' standing, with adherent ovary, relief has been obtained.

Postural Treatment.—

Alice M. Smith, in the *Medical Record* of May 11, 1901, gives an account of a young woman 22 years of age pregnant with her first child. Gestation had advanced to the eighth month, when she began to have labor pains, commencing at eight o'clock in the morning and continuing at increasingly short intervals until five in the evening, when there was a slight bloody discharge. Upon examination, the head of the fetus was found low down in the left iliac fossa and the buttocks well up in the right flank. The os uteri pointed directly backward and was 2.5 centimeters in diameter. External and internal manipulations failed to better the position, and at the end of three hours the patient began to show decided symptoms of exhaustion. The pulse in the meantime had increased to 124 beats.

The patient was then placed in the knee-chest position supported by pillows, and steady pressure was maintained through the rectum upon the displaced cervix, while with the index-finger of the other hand the presenting shoulder of the child was pushed upward, forward, and to the right. The relief given the patient was almost immediate; the pains became less frequent and of shorter duration. After placing the patient in the recumbent position the pains again returned, but were relieved when she reassumed the knee-chest posture. The next morning all signs of the threatened miscarriage had disappeared, and the patient went to full term and a normal labor three weeks later.

Suprarenal in Postpartum Hemorrhages.—

An editorial in the *Medical Age* of June 10, 1901, refers to the work of Schafer, of Edinburgh, upon the value of suprarenal gland in postpartum hemorrhage. An infusion of the dry substance, 30 grains to the pint, is injected into the uterine cavity. There may be added to the solution 60 grains of calcium chloride, which favors the coagulation of the blood. Such an injection promotes immediate contraction of the uterine muscle, and at the same time acts as the most powerful styptic known.

[A suggestion that we would make would be to use the active principle of the gland, adrenalin, because of the ease with which it is prepared and the certainty with which it can be sterilized. The use of the desiccated gland would mean injection into the uterine cavity of a large amount of organic material, which in solution would furnish a favorable culture medium for microorganisms. The adrenalin is many times more efficient than desiccated suprarenal, and its dosage is more definite.]

A New Method of Supporting the Perineum.—

J. Hofbauer, in the *Centralblatt für Gynecologie* of February 2, 1901, advises a new method of supporting the perineum in head presentation. As the head advances it is carefully observed until the anterior fontanel appears. At this moment the head is grasped and rotated about forty degrees, so that its engagement at the outlet shall be in an oblique direction. An effort to rotate the head must not be made until the anterior fontanel appears.

Mitral Insufficiency a Dangerous Complication of Pregnancy.—

H. D. Chadwick, in the *Boston Medical and Surgical Journal* of July 11, 1901, reports two cases in which death took place after the

delivery of the fetus, in which pregnancy was complicated by mitral disease. As a result of the unsatisfactory outcome in these cases the writer concludes that mitral insufficiency is a very dangerous complication in pregnancy. The only proper treatment is to watch such patients closely from the beginning, and where pulmonary congestion develops, accompanied by persistent cough and edema of the lungs, the patient should be advised of the necessity of terminating the pregnancy.

FORENSIC MEDICINE.

Psychic Epilepsy.—

J. W. Courtney, in the *Medical News* of June 22, 1901, reports a case of defective consciousness engrafted on an epileptic constitution. The case is one of considerable interest from a medicolegal standpoint. The patient was a waiter by occupation, and the family history was free from neurotic heredity. There was no history of venereal disease. Eight years before coming under observation he had been a moderate user of malt liquors and tobacco. When 18 years of age he had a fall from a tree, striking his head. He got up, began to walk, but did not fully regain consciousness until he had traveled several miles. He recognized that he had gone a long distance, but could not tell why, though he was aware that he had had a fall. Several years later he began to have fainting spells, during which his mind was a blank. Four years ago these spells were preceded by a bad taste in the mouth, and as unconsciousness began to develop he would clutch at near-by objects. Since this time there have been constantly recurring ambulatory and other automatic acts. While walking upon the street his mind suddenly becomes a blank, and he continues on indefinitely, knowing nothing of what he is doing, or where he is going. On one occasion he remembers entering a saloon and asking some one to drink with him, but does not remember going to the bar. Several hours later he found himself under arrest for drunkenness. His memory is poor, but between the attacks he manages to tend to his work. Sleep is as a rule good, but occasionally there are two or three nights in which he is wakeful, and upon these occasions his mind is not clear. Examination is negative from a physical standpoint; mentally the patient is sluggish and shows marked impairment of memory. There are no hallucinatory or delusionary precursors of the attack.

An attack during which he was under observation in the clinic

is described: "He sits staring at a newspaper, which he holds semi-inverted, as if in the act of turning it. The pupils are equal, moderately contracted, and irresponsive to light. The face is congested and sweat pours from the forehead; the patellar reflexes are absent. He pays no attention to questions even when they are put to him in loud, sharp tones. There are no convulsive movements. Given a pasteboard card, he tears it industriously in layers, and then demolishes a block of prescription blanks slip by slip. When nudged or shaken he merely grunts and continues what he is doing. Ten minutes after onset he answers questions somewhat, but cannot tell where he is. He is then given a promissory note for ten thousand dollars made payable to me for value received, and asked, after reading it, to sign it. He does so, and is then asked to add the date. In response to this he looks at the newspaper in his lap, asks what the date is, and when told repeats his question several times, finally adding date to the note. He is then told to read the note aloud, and does so, calling $10,000 ten dollars. He is told that the sum is ten thousand dollars, and asked if he meant to sign it. He says he did. Five minutes later he is shown the note again, but remembers nothing about having seen or signed it. Half an hour after the onset the patient is almost fully conscious and remembers nothing whatever about the attack or anything connected with it. His knee-jerks are now present and normal. The pulse and respiration have been normal throughout."

A Case of Stramonium Poisoning.—

Ernst Friedlander, in the *Berliner Klinische Wochenschrift* of March 4, 1901, says there were about fifty cases of poisoning by this substance in the last thirty years. In most instances the seeds or the fresh plant were employed. In the case under consideration the poisoning occurred from a strong infusion of the leaves. The patient was 44 years of age and had suffered from asthma. He obtained some stramonium leaves from an apothecary, and did not notice that the directions stated that they were to be burned and the fumes inhaled. A fifth of the package was placed in a cup, to which hot water was added; of the resulting infusion he took a large cupful. Two acquaintances also took some of the tea, and during the day suffered from nausea and diarrhea. A few minutes after taking the tea there was a burning and constriction of the throat; then he became unconscious, and one hour later was taken to the hospital. At that time his face was red and slightly cyanotic. The breathing was hurried and superficial, and on auscultation was bronchial in

character. The pulse was full. The pupils were fully dilated and did not react. The patient's stomach was washed out and some coffee and alcohol administered. Shortly after the patient slept, and on the following day, with the exception of some burning in the throat, did not seem much the worse for his experience, though the pupils were still widely dilated. Forty-eight hours after the dose had been taken the pupils reacted to light. The writer refers to the resemblance of stramonium poisoning to that of atropine.

Double Consciousness.—

The Buffalo correspondent of the *New York Medical Journal* of June 15, 1901, reports a singular case of double consciousness. The man arrived in Buffalo on the evening of May 24, and two days later went to a clergyman after evening service and stated that he had forgotten who he was and where he came from. The superintendent of police and a police surgeon were summoned. In answer to questions of the latter the young man was unable to say what his name was, where he lived, whether he was married, or, indeed, anything at all. He seemed to remember most of what had occurred to him subsequent to his arrival in Buffalo. He was taken to the police station, where he made no objection to being searched, but no trace of his identity was found. The address of a married woman was found in his pocket, but he denied any knowledge of who she was. Drs. Krauss, Crego, and Putnam were summoned to see the patient, and they hypnotized him. While in the hypnotic state he readily answered questions as to his identity and informed the physicians that he came from Providence, was 25 years of age, married, and the representative of an insurance company. He did not know that he was in Buffalo, and was uncertain as to how he got there. On being restored to full consciousness he remembered having decided to come to the exposition, but everything that had transpired subsequently appeared now to be a blank. The woman whose address was found upon him proved to be his sister, who was able to definitely fix his identity.

It is understood that all original communications sent to this journal are for its pages exclusively, excepting in cases where articles are published in the transactions of the Societies before which they are read, or in which an abstract appears. Articles will be illustrated. Authors will be furnished a liberal number of reprints; or, if they so elect, an honorarium will be paid for original communications.

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ORIGINAL ARTICLES.

CHOREA; ESPECIALLY IN RELATION TO RHEUMATISM AND ENDOCARDITIS.

BY H. B. FAVILL, M.D.,
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Chorea has been regarded in general as a functional disease. Whatever was meant by that term, the basis of that view has been its transient character, its perversion rather than its destruction of function, and its lack of morbid anatomy.

No question is more surrounded with contradictions than that which we must ask at the outset of this discussion: What is functional disease? Without attempting to answer, we may reflect upon the various factors that are concerned in our answer at any given period.

To start with, the designation is relative and subject to modification as knowledge grows. Hence the conception has only stability for such periods as afford no advance in knowledge and classification; in fact, it is always provisional. It stands primarily in antithesis to the term structural—organic—and in that relation of course recedes before deeper acquaintance with pathologic change.

We may readily conceive that in a strict sense there can be no disease which has not some alteration in molecular arrangement; hence, which is not finally structural. The logic of our progressive change of view is to such a conclusion.

Long before such a point is reached, however, we shall come upon another point of view: To what extent are structural changes the expression of the exposure of tissue to altered conditions, probably chemical? and hence are not such structural changes only

partially explanatory of disease manifestations? And out of this reflection springs the question: What will a given exposure induce in the way of symptoms, at various stages of the structural changes consequent upon it? At once we see that not only do the most varied groups of symptoms become allied in reactions of different tissues to a common cause, but we may fairly infer that the play of the chemical influence upon the organic mechanism will result in changing pictures as the structures progressively alter; and therefore that the same organ reacting to a given influence in altered function, changing its own structure under the same stimulus, will present at various stages of its pathologic progress perversions of functions, so various as to cause them to receive quite distinct consideration and description. Accepting the necessity for such treatment, we need not lose sight of the simple factor in the reaction, nor forget that we are dealing with progressive processes.

To conclude, therefore, as we may in future, that all disease is organic, even though we fully comprehend the change in structure, by no means satisfies the demands of our problem. It is not ultimate, and the inquiry must go much deeper.

So it appears that there is no place for the term "functional" except as an expression of one of two views: either describing a reaction whose structural basis is unknown, or as implying the possibility of response to morbid influence without permanent organic change. In either event the morbific influence is becoming a more essential factor, and we find steadily less opportunity to reckon without it. By such a pathway have we come to the recognition of the influences which we call toxic, and even the term septic and the idea of infection find their interpretation in this broader intoxication. It is only in such generalization that we can reach any standpoint, even provisionally, from which to regard this very interesting but obscure topic under discussion.

Chorea has run the whole gamut of speculation as to its nature. Functional, embolic, toxic, infectious, degenerative—all possible views have been advocated strenuously. We are, in fact, not in position to form a conclusion about it. Each aspect of the case lends strength to one or another of the hypotheses. None of them are universal in application, and hence one of three conclusions is necessary: either there are numerous different causes, or there is a cause not yet ascertained, or there are cooperative causes. Our use of the term will refer solely to Sydenham's chorea, which is the only real chorea clinically. Even with regard to this there is a wide difference of opinion as to whether there are not various kinds. In view of the

fact that we know so little of the basis of any kind, it is at present rather a fruitless contention.

Clinically it is a well defined affection too familiar to justify one in its description. Let it suffice that it is frequent, serious, complicated, and at times amongst the gravest of diseases of the young. Whence comes it? Out of all manner of conditions, to be designated as debilitating, excited or disordered. There is indeed little in common in circumstantial facts. That aspect is protean.

At an early date the apparent association of chorea with rheumatism led to much discussion of the topic. The question has been vigorously argued. By some it is maintained that it is allied to rheumatism in general; by others that only that rheumatism which had endocarditis as a complication, presumably making the endocardial lesion the connecting link; by others the whole relation of cause and effect is denied.

First, what are the facts? In a very large proportion of closely analyzed cases associated rheumatism is to be inferred from various arthritic or similar manifestations. These arthritic developments, however, are distinctly divisible into the attacks which coincide with the chorea and those that precede it by a variable but considerable interval. Much more marked is the association of endocarditis with chorea — that is to say, endocardial lesions, not necessarily recent. Even so, the explanation of the coincidence is not ready, and when one considers that the various morbid outbreaks in a number of these cases were separated by long intervals, it is with hesitation that one concludes that there is a causal relation.

Let us digress for a moment and observe what is true of endocarditis. That it may be due to infective invasion, in the course of various diseases, there is no question; that it may be due to participation in the reaction to the morbific agent of rheumatism there is no question. Whether in pursuance of the suggestions therein contained rheumatism is an infection is beside the point. We see that endocarditis is associated with rheumatism. Is it a complication? By no means. It *is* rheumatism. Nothing is more important than that we divest ourselves of the idea that endocarditis is a sequel of rheumatism. Often, very often, in children, it is the only manifestation of rheumatism, and more often the arthritis that coexists or precedes is so slight as to escape attention. Likewise, with enormous frequency, the endocarditis escapes attention in the absence of arthritis.

The observation is well verified that endocarditis is essentially

the rheumatism of the young. Yet what is the relation between the cardiac and arthritic manifestations? Gradually evidence is accumulating that rheumatism is a septic process; whether of one form of coccus or another does not matter to us at this time. The fact, if established, will serve to simplify and harmonize the relationship between the joint and cardiac lesions.

The known relation of cardiac disease to septic and infective processes has logically demanded such a nature for rheumatism as a causal antecedent or collateral process. The toxic foundation of rheumatism, though by no means disposed of by such demonstrations, receives an important coordinate factor. Manifestly, if it is demonstrated that the arthritis as well as the endocarditis is of infective origin, the problem will still be open. Is there an underlying toxemia? Clinical observations, it seems to me, abundantly suggest this to be the case. Yet it is simple to overdo the toxemia view, by reason of its very generalizing character.

But more specifically, to touch upon that ground, which if it were not most important would be trite, the relation between rheumatism and gout, what is our view? (1) Are we not reasonably sure that much of the clinical showing of gout, of all sorts, is chemical — that is, toxic? If so, we cannot disregard its value in this problem. (2) Are we not reasonably assured that there are various conditions of disease in which, alternately or together with a form of rheumatism not typical gout, we find a cause in the gastrointestinal chemic perversions? Instances of alternating diarrhea, asthma, pseudoangina, bronchitis, and arthritis I have heretofore reported. These I believe to be more or less correlated evidences of a common toxemia. Of the possibility, nay, the frequency, of such complex pictures I am persuaded.

The question may fairly be asked, Is the arthritis in such cases identical with that of rheumatism? So far as my observation goes it is somewhat regularly subacute or chronic, and has not been shown to be septic. Clearly, it may be different, but my point is not altered thereby. The alternation or coincidence of arthritis and neurotic manifestations, repeated to the point of moral certainty, no matter how obscure the cause, is the fact I wish to set forth first. I am quite sure this happens. Hence I am quite prepared to regard a neurosis, which can be clinically associated with arthritis, as being also etiologically related. The record of clinical behavior of the body reacting to toxins is full of surprising facts, and I do not at all share the skepticism of those who see in

the utter unlikeness of the symptoms a necessary separation as to origin. Secondly, I wish to call your attention to the fact that toxic agents are produced under widely different conditions, and that we have no reason to regard the influence of toxins as essentially different, though of different origins. There is no reason, for example, why a chemical substance, the result of acid fermentation in the intestines; a chemical substance, the result of defective proteid metabolism in the tissues; and a chemical substance, the result of the physiological activity of bacteria, should be held as anything but chemical agents. They are capable of producing effects, dependent upon character, amount, access, concentration, condition of resistance of the body attacked, and, of course, many other factors. What will this poison do to this cell, under these conditions? It is not a complex statement. The point of view, however, to my mind is important, and clinical observation furnishes us with plenty such significant relations.

Unfortunately, we have no consistent observation as to the morbid conditions that exist during the attacks of chorea. The seat is doubtless cortical, and the post-mortem findings have been not at all uniform and are very meager. Recently a few cases have been thoroughly worked up which lend weight to the view that the neurosis is not toxic, that is of remote origin, but that the infective agent is really at work in the brain as in the joints and heart. Such a demonstration, if it come, will of course simplify the conception so far as these disease manifestations are concerned, but will not dispose of the facts which are now more or less stumbling-blocks.

In spite of the fact that the light that comes tends to identify both rheumatism and chorea with infectious processes in some way, the most serious obstacle to considering them as one in origin lies in the fact that only a part of the cases of chorea, variously stated as from 18 to 50 per cent, have any history of arthritis. As bearing upon this point, however, it must be said that the rheumatic arthritis of children is regularly so slight that defective observation and forgetfulness may readily account for a very large error in this respect. This suspicion may be emphasized by the fact that endocardial lesions' indelible marks are very much more uniformly found in chorea than is a history of arthritis. Couple with this the fact that the arthritis belonging to endocarditis is in a large number of cases either wanting or overlooked, and we have reason to distrust the statistics which report only "undoubted" histories.

Even though the discrepancy cannot be overcome—assume that many cases of chorea have had no arthritis—does it follow that there is no relation? Assuredly not. Are we not agreed that endocardial rheumatism may be independent of arthritic rheumatism? If so, why not choreic rheumatism? We must admit the toxin. We must admit the possible neurosis the result of toxic action. Why not the chorea, from rheumatic toxin without arthritis? Clearly, there is no reason why not. All that remains is the demonstration.

Are we not also agreed that there is endocarditis from many infections besides rheumatism, if indeed rheumatism be an infection? There are many forms of arthritis besides that of rheumatism, of infective origin. We have gonorrheal, pneumococcic, pyemic. In fact how many have we? All are more or less subject to confusion under the name of rheumatism. Indeed, we must hold this subject lightly, prepared to change our views on all the factors involved, but with a clear recognition of the fact that the evidence is accumulating that chorea, arthritis, and endocarditis are (1) related to each other; (2) are related to infectious cause or causes.

We have no reason to assume that this is the only cause. We have no ground for stating that the same agent that induces the arthritis induces the chorea. We have reason for demanding that an explanation to be accepted as final must account for:

1. The decided heredity in chorea—76 per cent of neurotic family history.

2. The preponderance of association of chorea with what we clinically call rheumatism, including its predisposing factors.

3. The various toxic relations not only of chorea but of rheumatism, now thought not to be septic.

4. The most obscure, the fact that clinically distinct chorea has followed upon emotion and fright, at times immediately, in cases sufficient to demand explanation.

It is not wise to be too technical in this analysis. One can erect barriers to any extent upon any one of these obstacles. A broad view is what we want, into which will fit the various demonstrations as they come along. The impression is not to be escaped that we are dealing with related conditions. It grows more probable that they are infective. Let us not be confused by the contention as to whether the infection is simple or "mixed;" nor by that as to whether we have various kinds of chorea or arthritis; nor by the difficulty of explaining the purely neurotic features.

The conclusion is warrantable that endocarditis, chorea, and

arthritis are coordinate manifestations of disease conditions, peculiar to the young in that order, and that an important element in causation is infection.

Beyond this statement we cannot go, but it is well if we are justified in going this far that we agree about it. There has been great opposition to the adoption of the theory of a relation between chorea and rheumatic conditions. One must, however, face the facts, and the significance of recent demonstrations adds weight to the view that by some combination of etiologic factors the coincidence of chorea with the usual manifestations of rheumatic poison deserves an essential rather than an incidental interpretation.

SOME FUNCTIONAL MANIFESTATIONS.

BY EDWARD BENEDICT TAYLOR, M.D., CHICAGO.

There is not a nervous case examined where it should not be asked, "Is this a functional disease or is it organic, and if organic are not some of the symptoms functional and not due directly to the organic lesion?" This statement, though broad, seems justified by our present knowledge. Our studies in pathology have led us to think lightly of the functional disorders when in fact they are as serious as the organic; for while they do not kill so quickly they cause vastly more suffering. It may, I believe, be said without fear of serious contradiction that a purely functional disease can in time change to an organic disease with a new prognosis demanding new treatment. The treatment of functional and organic disease differs so radically that it is plainly our first and greatest diagnostic duty to decide in which great class a given case belongs.

The few functional manifestations taken up here were chosen for the reason that they resemble so closely certain organic diseases that they are all too often mistaken. They are all found here and there in the literature of hysteria, but the very way in which they are usually described is misleading, as we are led to believe that they occur only in connection with the disease hysteria, when in truth they appear in persons in whom the disease hysteria is much less in evidence than it is with many organic diseases, and frequently it cannot be found at all. In other words, any of the troubles here described may appear as clearly defined and as much alone as any organic trouble.

As ordinarily described hysteria is too indistinct in outline to answer the requirements of a single disease. We will likely arrive at a better conception of the functional side of neurology if we can succeed in dropping the repulsive, misused, and now meaningless word, and substitute some term to designate this *class* of neuroses.

If a case of functional paralysis presents itself we will likely find it possessing one or more of the following characteristics:

1. On testing the strength of the paralyzed muscles we may find the strength varying widely in different examinations. This *varying tension* is one of the strongest diagnostic points.

2. Under prolonged examination the paralysis may become markedly worse.

3. If observed without the patient's knowledge the paralysis may be much less.

4. Atrophy, except slight from disuse, almost never occurs. The exception to this rule is that marked atrophy has been reported in some cases of undoubted functional paraplegia. But there are also certain *organic* paralyses which are not attended by marked atrophy. There are the ones arising from lesions in the brain or motor tracts of the cord, namely, Cerebral hemorrhage, embolism and thrombosis (Apoplexy), Multiple Sclerosis, Syringomyelia unless rapidly progressive, Primary Spastic Paraplegia, Ataxic Paraplegia, Acute Ascending (Landry's) paralysis, Paralysis Agitans, Facial Paralysis (if upper segment), Tumor (if in an upper motor segment), Spinal Accessory paralysis (sternomastoid and trapezius muscles, if upper segment), General Paresis, and Periodic Paralysis of the Ocular Muscles.

5. The reaction of degeneration is never present, but neither is it present in the diseases just listed, with the exception of Periodic Paralysis of the Ocular Muscles. In this disease there is a loss of faradic irritability, but no atrophy. Almost always marked atrophy and the reaction of degeneration go hand in hand.

6. The deep reflexes are usually normal, but may be increased. When increased we often find on striking the tendon that there is a start of the whole body, with perhaps an expression of discomfort or pain from the patient, accompanied by increased cardiac action and dilatation of the pupils. It is very rare to find the knee-jerk diminished and excessively rare to find it lost. If apparently absent, place your hand on the hamstring tendons to see if they are properly relaxed.

A spurious ankle clonus is not rare — that is, a clonus giving but a very few taps, although pressure is kept up. In rare cases an ankle clonus which is apparently perfect is present; therefore this sign should not be considered as a positive sign of organic lesion as it formerly was.

7. If the paralysis is accompanied by anesthesia or analgesia it will be found never to conform to the cutaneous distribution of a certain nerve or nerves as is the case in an organic lesion.

If it is an analgesia the prick of a pin is rarely followed by the customary drop of blood, owing to the vasomotor constriction which usually accompanies this form of analgesia.

8. If bladder trouble is present it appears in the form of retention or frequent urination, but never of incontinence. Incontinence due to paralysis is almost proof of organic lesion.

If the case is one of paraplegia the patient may be able to move the legs freely and with strength when in bed, yet be unable to walk or even stand.

Too often a work will dismiss this subject with some such remark as this: "If it is suspected that the paralysis is of functional origin examine the patient well for signs of hysteria," seemingly forgetting that a hysteriac may have an organic paralysis. We must depend more on the local symptoms and signs, and not abuse our circumstantial evidence. This remark applies with equal force to all the other neuroses mentioned.

In a case of functional contracture we will likely find one or more of the following phenomena:

1. The same variable tension found in paralysis.
2. The same aggravation under examination.
3. The same unconscious improvement when not conscious of observation.
4. When we attempt to overcome the contracture the resistance may be proportionate to the force exerted.
5. They always disappear under chloroform or ether narcosis unless of such long standing that organic change has set in. If recent and slight, deep normal sleep may cause relaxation.
6. The contracture, instead of producing flexion or rigidity of the limbs, may produce the phenomenon of phantom tumor by a rigid contraction of the diaphragm and a portion of the recti. This condition may simulate pregnancy or abdominal tumor so closely that more than once have some of our first surgeons been deceived until under the anesthetic the condition vanished.

Various muscles are now and then found to undergo segmental contraction, causing a hard, tumor-like mass, notably the pectoralis major, and gastrocnemius. Here, as in the other forms of contracture, narcosis is our crucial test.

Tenderness of some part may be the trouble which brings a person to a physician. Perhaps a certain rib is so tender as to prevent the wearing of a corset. There may be a troublesome tenderness in the ovarian region resembling ovaritis so closely as to be at times indistinguishable from it. Many an operator has cut down upon a healthy ovary. A tenderness in or beneath the breast is common; the breast may even be swollen. Tenderness of the crown is common and also points along the spine. We may expect to find them anywhere, and our diagnostic points are meager.

1. The fact that light pressure is usually as painful as deep, and often more so.
2. The fact that it is usually very amenable to *suggestion*. We can often remove the trouble by stroking, the relief being sometimes permanent. A placebo, such as applying electrodes with no current, occasionally succeeds.

Pain. — 1. The pain of a neurosis is much more commonly extreme than that of organic origin. While a neurotic pain may be of any degree it commonly tends to be of the *utmost* severity. It is not common for pain of organic origin to assume this extreme degree without the diagnosis being beyond question. No pain, then, can be too severe to be functional.

2. After perhaps a week of extreme suffering the patient will be relieved or recover spontaneously in a few minutes and feel and look perfectly well, the suffering not having left its customary traces.

The Hip- and Knee-joints.—A functional trouble of these joints may so closely resemble true necrosis as to deceive the most competent. There is tenderness, with fixation, apparent shortening, and later possibly the swelling denoting the pointing of an abscess, this latter due to a segmental contraction of a muscle. The diagnostic points are:

1. Hip- and knee-joint diseases when organic run an unusually even and typical course, so much so that an atypical course points slightly toward functional trouble.

2. Variability in the fixation of the joint—that is, the rigidity of the muscles may be markedly greater at one time than another, and perhaps worse under examination (variable tension).

3. Chloroform or ether narcosis is the most reliable test. Slight narcosis usually causes relaxation of the rigid muscles in a functional case, while the deepest narcosis is needed in the organic.

4. Tenderness is usually more marked in the functional cases.

A sufficient number of manifestations have been mentioned, I trust, to indicate the care that must be exercised in diagnosis. This is all I have attempted to do.

Our diagnostic points are not plentiful, but by observation they will probably be materially added to in the near future, as the functional side of neurology becomes better understood. A need of this study is very practically shown by the large number of cases that daily slip through the fingers of the profession for the want of proper diagnosis and consequently proper treatment. If we are to successfully compete with the faith-curist, Christian scientist, and magnetic healer we must prepare ourselves to diagnose and treat the ills they *sometimes* cure.

100 STATE STREET.

IS BOVINE TUBERCULOSIS DANGEROUS TO MAN?

BY E. FLETCHER INGALS, M.D., CHICAGO.

The address delivered by Prof. Robert Koch before the general meeting of the British Congress of Tuberculosis in London, July 23, and the statements that he felt justified in maintaining that "human tuberculosis differs from bovine and cannot be transmitted to cattle;" and that "though the important question of whether man is susceptible to bovine tuberculosis at all is not yet absolutely decided, one is nevertheless at liberty to say that if such susceptibility really exists, infection of human beings is but a very rare occurrence," have excited in the profession an interest second only to that produced by his report on the diagnosis and treatment of tuberculosis and lupus by tuberculin. These statements have been received by medical men with varying degrees of surprise, satisfaction, and confidence, and have excited in some, but more particularly among veterinarians, the sharpest criticism. Since the discovery of the tubercle bacillus by Koch, expectancy has been at high tension in watching for a cure; therefore, the mad rush for tuberculin and the extravagant reports of its efficacy, which greatly obscured Professor Koch's own modest statements, were quite natural. The disillusionment that followed has made physicians more guarded, and although all recognize the prestige of the author, most of the profession are slow to accept these statements as established facts. Many of the more conservative physicians were long in accepting the tubercle bacillus as the real cause of consumption, but practically all have finally come to believe it a most important factor, although very many still look upon it, as it were, as only the seed which must have a suitable environment and a fertile soil (as in those of inherited or acquired defective resisting powers) before it can begin its deadly work.

The more enthusiastic, particularly the younger bacteriologists and pathologists, have believed that, given the bacillus and the human or indeed almost any of the other higher animal organisms, there must result pulmonary or some other form of tuberculosis. This class cannot accept Professor Koch's recent statements, as they take away the very foundation for their medical belief.

Those conservatives who have observed some of the peculiarities of inoculated tuberculosis, and who have noted the bactericidal qualities of milk and the comparative infrequency of intestinal tuberculosis in infants, as well as the immunity of many others who

have used milk freely, have always doubted the danger attributed to this liquid by the ultra-bacteriologists. Physicians of this class have welcomed with satisfaction the support given to their views.

Those who have made a vigorous warfare upon bovine tuberculosis, and who have insisted that all those coming under their influence must sterilize all cow's milk before it is taken, or who have written learned articles to vindicate their positions, necessarily find themselves in an embarrassing position from which they cannot easily recede. However, recognizing the great weight of authority, most medical men are content to wait for the confirmation or disproval of these recent statements. Professor Koch, whose researches and preeminent qualifications entitle him above all others to have an opinion upon this matter, has long doubted the identity of human and bovine tuberculosis, and his experiments, which, as he states, gave "unambiguous and absolutely conclusive results," were performed by methods of infection which excluded all sources of error. Even though these experiments were not very numerous, they were much more complete and are far more convincing than the majority of experiments upon which have been founded many of our accepted theories; indeed, there seems no reasonable room for doubting the position that human tuberculosis cannot be transmitted to cattle by those methods which so surely convey bovine tuberculosis. Therefore, we are more than justified in believing that the diseases are not identical; and when we consider the care which was taken before he made this announcement, we should not hesitate to adopt his views, although we are ever ready to carefully weigh any scientific experiments calculated to settle the question.

Koch states that for a long time he had been doubtful about the identity of human and bovine tuberculosis, and that he had frequently experimented with a view to settling the question, but had not arrived at "absolutely conclusive results" until he experimented upon cattle. These experiments, which were made along with Professor Schütz's of the Veterinary College in Berlin, extended over a period of two years, and nineteen young cattle that had withstood the tuberculin test were employed. From six to eight months after the beginning of the experiments they were killed, and it was found that "they were absolutely insusceptible . . . to the living bacilli of human tuberculosis." He states: "The result was utterly different, however, when the same experiment was made on cattle free from tuberculosis, with tubercle bacilli that came from the lungs of an animal suffering from bovine tuberculosis." About a week after such infection "high fever set in, the animals became weak

and lean; some of them died after a month and a half to two months, others were killed in a miserably sick condition after three months. After death extensive tuberculous infiltrations were found at the place where the injections had been made, and in the neighboring lymphatic glands, and also far-advanced alterations of the internal organs, especially the lungs and the spleen." "In short, the cattle proved just as susceptible to infection by the bacillus of bovine tuberculosis as they had proved insusceptible to infection by the bacillus of human tuberculosis."

He states, further, that "an almost equally striking distinction between human and bovine tuberculosis was brought to light by experiments upon young swine, six of which were fed with the tuberculous sputum from consumptive patients, and six others of which received bacilli of bovine tuberculosis." He states, further, that a difference was also shown by similar experiments with asses, sheep, and goats, and that many somewhat similar experiments were made in former times by Chauveau, Günther and Harms, Böllinger, and others, and that other comparative investigations have been made in America by Smith, Dinwiddie, Frothingham, and Repp, whose results agreed with theirs.

Admitting as correct the proposition that human tuberculosis cannot be communicated to cattle, can we accept the converse, that bovine tuberculosis cannot be communicated to man? I know of no stronger reasons in support of this view than those given by Professor Koch in the address under consideration. He states that it is impossible to answer this question directly, but that many experiments have been unintentionally carried out which tend to substantiate his views. "Most of the inhabitants of cities daily consume living and perfectly virulent bacilli of bovine tuberculosis. . . . If the bacilli of bovine tuberculosis were able to infect human beings, many cases of tuberculosis caused by the consumption of alimenta containing tubercle bacilli could not but occur among the inhabitants of great cities, especially the children. And most medical men believe that this is actually the case. In reality, however, it is not so. That a case of tuberculosis has been caused by alimenta can be assumed with certainty only when the intestine suffers first—that is, when a so-called primary tuberculosis of the intestine is found. But such cases are extremely rare. Among many cases of tuberculosis examined after death, I myself remember having seen primary tuberculosis of the intestine only twice."

He goes on to cite thousands of post-mortem examinations of tuberculous children in which primary tuberculosis of the intestine

was found with exceeding rarity, and he feels that this evidence is practically sufficient to establish his proposition, though he urges further research.

From this evidence Professor Koch's proposition certainly appears reasonable, but with him we may withhold conclusions until further research can furnish additional proof. In the meantime many of the profession feel warranted in advising their patrons not to worry so much as formerly about milk; though no one wishes the care relaxed that is now being taken to prevent the sale of milk from diseased cows, or to protect consumers against tuberculous beef.

It ought not to be difficult for those having the confidence of the governors in various States to place the importance of this subject before them in such a light that for the benefit of humanity some of these governors would consent to commute the death sentence, in certain cases, to life imprisonment for murderers who would consent to be thoroughly inoculated with bovine tuberculosis, provided the research could be carried out by skilful and scientific physicians. There is no doubt that those persons who have forfeited their lives would gladly accept this chance for prolonging their days even within the walls of the penitentiary, and I can see no insurmountable reason why the authorities could not adopt this course, in view of the great benefits that the solution of this question would confer upon humanity.

34 WASHINGTON STREET.

ANEURISM OF THE RECURRENS TYPE.[1]

BY R. B. PREBLE, M D., CHICAGO.

The term "aneurism of the recurrens type" is adopted from Dieulafoy, who devotes considerable space both in his text-book and in his lectures in the Hotel Dieu to cases of this sort. He means by it cases of aneurism of the aorta in which symptoms either of irritation or paralysis of the left recurrent nerve are prominent, although he devoted much more time and attention to the symptoms of irritation than to those of paralysis.

The fact that symptoms arising from the recurrent nerve occur in cases of thoracic aneurism has been known for many years. Stokes, in his masterly work on "Diseases of the Heart and the Aorta," discusses the laryngeal symptoms, contrasting them particularly with laryngeal symptoms of diseases of the larynx: "In aneurism . . . we find remarkable variations in the tone and power of the voice occurring within short spaces of time. This is what might be expected from considering the cause of the symptom, which is manifestly the result of pressure, or of irritation, or of both combined, upon the recurrent nerve." Cases were known to Stokes in which the recurrent nerve was altered, and he quotes a case from Dr. Todd, in which the recurrent nerve was flattened and the vocal muscles of the corresponding side were found atrophied.

Bamberger also was familiar with these symptoms, and speaks of the paroxysmal attacks of severe dyspnea, mentioning a case in which these attacks were so severe as to lead to a diagnosis of stenosis of the larynx, and laryngotomy. He says: "In such cases the condition of the vagus and recurrent nerves apparently plays an important rôle. To the latter are due the many cases of hoarseness and aphonia observed." In speaking of dysphagia he says: "The difficulty in swallowing is often due not so much to direct pressure as to irradiation and spasm, as is shown by the variability of the symptoms."

In 1860 to 1861 Traube published two cases of aneurism of the aorta in which paralysis of the left vocal cord was recognized by the laryngoscope, and since that time laryngoscopic examinations of the larynx in cases in which aneurism of the aorta is suspected have become routine, and many cases of paralysis of the left vocal cord

[1] Read at 1901 meeting of the Illinois State Medical Society.

have been reported and correctly referred to paralysis of the left recurrent nerve.

Symptoms of irritation of the recurrent have attracted much less attention, and, while there are scattered in literature many reports of cases which are apparently of this sort, very few of them are explained in this way. The only place in which I have been able to find any detailed mention of these symptoms are the lectures by Dieulafoy. He quotes a few reports by French authors, but the original reports could not be obtained by me.

In 1866 Krishaber (quoted by Dieulafoy) reported a case of aneurism of the arch of the aorta in which paroxysms of dyspnea necessitated a tracheotomy. Direct observation in this case, and experiments upon animals, proved the dyspnea to be due to spasm of the laryngeal muscles, closing the respiratory slit. Poulalion, in 1890, was able to make an examination of the larynx during a paroxysm in a similar case, and confirmed the observation of Krishaber.

Before describing the cases which furnish the basis of this report, it would seem well to briefly recall the functions and anatomical relations of the left recurrent nerve, thus making clear the explanation of the laryngeal symptoms, and indicating the symptoms which might be expected to accompany them. The course of the two recurrent nerves differs materially; the right leaves the vagus, and curving backward around the right subclavian artery passes upward in the groove between the trachea and esophagus. At no point does it enter the thorax, a fact which explains the infrequency of symptoms from the right vocal cord in thoracic aneurism. Such symptoms occur from aneurism of the right subclavian, as is illustrated by the case of Meyer. The left recurrent leaves the left vagus lower down, curves around the arch of the aorta, below the remains of the ductus Botalli, passes between the aorta and the left bronchus, and then passes up to the larynx as the right does.

The recurrent nerve sends off five sets of branches:

1. Cardiac branches to the cardiac plexus.

2. Esophageal branches, both motor and sensory, to the upper portion of the esophagus.

3. Tracheal branches.

4. Pharyngeal branches to the inferior constrictor of the pharynx.

5. Laryngeal branches, to supply all the intrinsic muscles of the larynx except the cricothyroid, which is supplied by the superior

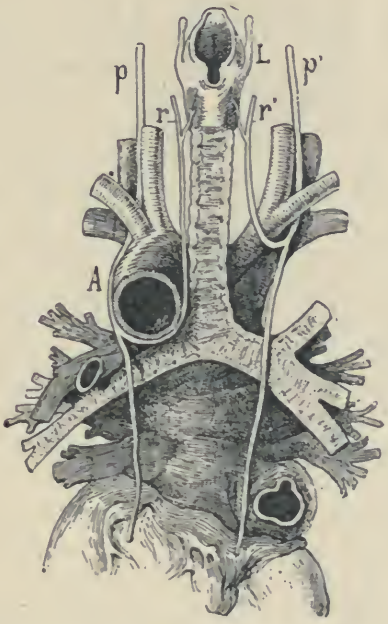
laryngeal. Each nerve sends fibers to the muscles of the corresponding side. One muscle, however, receives fibers from both recurrent nerves. This is the posterior transverse arytenoid muscle, which has the unique distinction of being the only unpaired muscle attached on both sides of the median line. Stimulation of either recurrent nerve causes a spasm of this muscle, bringing the arytenoid cartilages together, and occluding the respiratory slit.

If the left recurrent nerve is paralyzed, the left vocal cord is found in the cadaver position; the voice is not lost, but is hoarse and higher pitched, because of the unrestrained action of the cricothyroid, the tensor of the vocal cords. There is no obstruction to the breathing; even in cases of bilateral recurrent paralysis there is no dyspnea. If, however, the nerve is irritated, the muscles are thrown into spasm, and the transverse arytenoid muscle draws the vocal cords in close apposition, so that there is a very great obstruction to the entrance of air, a dyspnea so severe as to sometimes require an emergency tracheotomy. The laryngoscope will show that during such a spasm the left vocal is in the median line throughout its entire length, the anterior two-thirds of the right cord is in its normal position, but the space between the arytenoids is completely closed.

Paralysis of the left cord may be the only symptom of the involvement of the left recurrent nerve, but inasmuch as it does not always cause alteration in the voice, the laryngoscope must be used in all cases in which aneurism is suspected. In many cases of paralysis inquiry will show that there have been symptoms of previous irritation, and while one might expect, for theoretical reasons, that this would always be true, it is not so. The symptoms of irritation are never continuous, but occur in paroxysms lasting a few minutes to hours, coming on spontaneously or after exertion. After the paroxysm the larynx may appear normal, or the left cord may be paralyzed for a few hours, and then resume its function. The irritation may give place to a permanent paralysis in time, or may continue until death. No one can say why in one case we have paralysis without any previous symptoms of irritation, and in another irritative symptoms precede or constitute the whole picture.

Accompanying the paroxysmal contraction of the laryngeal muscles we often find paroxysmal symptoms from the other branches of the recurrent nerve. Conspicuous among these is the dysphagia, resulting from the spasm of the inferior constrictor of the pharynx and of the upper third of the esophagus. There is usually considerable pain on any attempt to swallow. The duration and frequency

of such attacks of painful dysphagia vary, and there is no direct relation between the intensity of the dyspnea and that of the dysphagia; nor are both present in all cases. In some cases there are attacks of pain in every way similar to the angina pectoris, due presumably to irritation of the cardiac branches of the recurrent nerve.



The cut shows the relation of the aorta, where it is surrounded by the loop of the recurrent nerve, to the left bronchus and the lower part of the trachea. A, aorta; p, pneumogastric nerve; r, recurrent nerve; L, larynx.—DIEULAFOY, *Clinique Médicale*, 1896.

A glance at the chart showing the close anatomical relation of the recurrent nerve to the left bronchus suggests the possibility of another set of symptoms, which would be associated with the above if the aneurism arose from the neighboring part of the aorta. These are the symptoms of bronchial compression. The intensity of these symptoms varies with the degree of the narrowing of the bronchus. In these cases the narrowing does not usually reach a high degree, because death interrupts. For this reason it is decidedly rare to find any retraction of the left side of the thorax. Many of the cases, however, show a lessening of the respiratory motility of the left side.

Palpation confirms the results of inspection, and shows a marked lessening of the vocal fremitus over the entire left side. In some

cases we find the tracheal tugging, a sign which has received more attention than its diagnostic value warrants. Usually there is no asymmetry of the pulses.

Percussion shows that the resonance of the lung is retained, and, in fact, the left side is usually more resonant than the right, because the bronchial stenosis is usually sufficient only to cause a moderate decrease in the amount of air in the lung. With this moderate decrease there is a relaxation of the lung often sufficient to cause an increase in the resonance. In some few cases the decrease in the amount of air is sufficient to cause lessened resonance or even dulness.

In most of these cases there is no dulness arising from the aneurism, for death usually results before the tumor has reached sufficient size to be demonstrated by percussion.

Auscultation shows a marked diminution of the respiratory murmur and of the voice sounds over the entire side. There may or may not be a murmur of stenosis heard over the bronchus. There is usually no abnormal sound from the aneurism itself.

When one finds coexisting paroxysms of dyspnea, cough, and dysphagia, with the physical signs of a bronchial stenosis, there must be some pathological process affecting the left recurrent nerve, and the left bronchus.

So far the diagnosis can be carried with ease and certainty, but beyond this point comes doubt. A great many pathological processes — a gland, a band of fibrous adhesions, a gumma of the bronchus, etc.—could cause the combination as easily as an aneurism. In a child, or a patient with a generalized enlargement of the lymph glands, or with a carcinoma of the stomach, for example, one would think of a bronchial gland. But in a male who is past thirty-five, who is syphilitic and alcoholic, one must think seriously of the aneurism, because of its great relative frequency.

When one makes a diagnosis of an aneurism at this point the prognosis is extremely bad. Particularly is this true if there are none of the ordinary manifestations of thoracic aneurism—no dulness, no thrill, no murmur, no asymmetry of pulses — for under such circumstances one must infer that the pressure is very direct. Clinical experience shows, what we would expect from the anatomy of the part, that bronchial hemorrhage is an early and fatal complication in most of these cases. They illustrate well the fact that the prognosis of an aneurism is dependent upon its site rather than its size.

Case 1.—W. O. R——, a male, 45 years old, came to my clinic

at the Northwestern University in May, 1900, complaining of cough for past three months. There was but scanty expectoration and no pain, but at intervals spells of severe dyspnea. On direct inquiry he says that at times there is considerable difficulty in swallowing, but generally food of all sorts passes freely. Never had an illness in any way similar to the present.

Gonorrhea and syphilis twenty-five years ago. Has been a heavy alcoholic for years, and has been drinking more than usual since present illness.

Examination: Well built man, apparently in good health. At present time there is no dyspnea, but at intervals spells of coughing. Pupils equal and react to light.

Thorax symmetrical so far as size is concerned, but the respiratory movements of the left side are lessened. Both sides have same circumference. No enlargement of superficial veins. Vocal fremitus considerably reduced over entire left side. Distinct tracheal tugging. Percussion note normal and equal over both sides. Auscultation shows marked reduction of the respiratory murmur, and voice sounds over entire left half of chest. No murmur of stenosis over left main bronchus.

Heart normal in size, position, and sounds. No murmurs heard over aorta; pulse in corresponding vessels symmetrical.

Examination of larynx shows both cords normal in appearance and motion.

Examination in other respects negative.

The subjective symptoms are paroxysms of dyspnea, cough, and dysphagia. The physical signs are those of bronchial stenosis. The diagnosis of the site of the process is easy, for the symptoms and signs are easily explained by a process at the point where the left recurrent nerve and left bronchus cross. The absence of all signs and symptoms elsewhere, the history of syphilis and alcoholism, the age and the relatively great frequency of aortic aneurisms, lead to the diagnosis of aneurism of the aorta compressing the left bronchus, where the left recurrent lies between the bronchus and the aorta. The danger of early death from bronchial hemorrhage was pointed out, and an unfavorable prognosis was given.

A few weeks later Dr. Frank Walls, who knew of my interest in cases of this type, told me that he had a case of the sort in his service at St. Luke's Hospital, and was good enough to ask me to see it. It proved to be the case which I had seen at the clinic, and it is to Dr. Walls that I am indebted for the later history of the case. During this interval of about three weeks there had been but little

change, except that the left side is now distinctly smaller than the right—two inches—and the resonance of the left side is less than that of the right. The larynx negative. The cough and dyspnea increased. Toward the latter part of July he began to complain of severe pain across the chest, occurring in paroxysms. On the 6th of August he developed a temperature, with cough and bloody expectoration. This continued to the 15th, when he had a severe pulmonary hemorrhage, and died three hours later.

There was unfortunately no autopsy, but the course, the signs, symptoms, and mode of death seem to sufficiently confirm the clinical diagnosis.

Case 2.—Mike H——, German, 33 years, entered my service at the Cook County Hospital, June 5, 1900. For one month previous to entrance he had suffered from extremely severe paroxysms of cough and dyspnea. Expectoration is scanty, viscid, and colorless. Has never had any illness in any way similar to the present. Has had no trouble with his voice or with swallowing. Has no pain. Venereal sore of uncertain nature six or seven years ago. Has used alcohol and tobacco to excess for years.

Examination: Well built man, well nourished, suffering with severe paroxysms of cough and dyspnea at irregular intervals, usually developing spontaneously. During the intervals between attacks is quite comfortable. Thorax symmetrical in size and movements. Vocal fremitus lessened over entire left side. Percussion note same right and left lungs. Auscultation shows a very considerable decrease in intensity of voice and breath sounds over the left lung. Examination of the larynx shows the cords in normal position, and normally movable. Heart normal in size and position, no abnormal sounds. No abnormal area of dulness over the aorta, no murmurs; pulse in corresponding vessels is symmetrical. No tracheal tugging. A positive diagnosis of compression of the left bronchus with irritation of the left recurrent nerve was made, and it was thought to be due to aneurism of the aorta.

Things remained in this shape for a few weeks, when gradually an area of dulness about two inches in diameter appeared behind the manubrium sterni. The two radial pulses became asymmetrical, the right larger than the left. The symptoms of bronchial stenosis remained unchanged, and the laryngeal spasms recurred at intervals.

There were no new developments until the latter part of August, when he developed a temperature of 103°, with great acceleration of the pulse and respirations, and severe cough and dyspnea, with scanty expectoration. This continued for four days, and with

the fall in temperature and relief of cough he raised a very large amount of purulent sputum for a day or two, and then resumed the condition present before the attack. He had several of these attacks at irregular intervals. The nature of them is not clear, for they were not accompanied by any change in the physical signs. It was thought that perhaps the bronchial secretions stagnated below the point of stenosis, and underwent changes which led to intoxication of the patient, causing the high temperature which characterized each of these attacks. A bronchopneumonia is another possibility.

It is interesting to note that Case 1 developed a temperature four days before the fatal hemorrhage. Case 2 remained in the hospital until January of this year. He has been seen a few times since without there being any material change in his condition.

This case has not yet come to an end, but there seems to me no reasonable doubt of the correctness of the original diagnosis of an aneurism of the arch of the aorta, compressing the left bronchus and irritating the left recurrent nerve. For some reason the aneurism apparently took on a new direction of growth, so that pressure on the bronchus was lessened, or at least did not continue to increase until the bronchial wall was perforated and a fatal hemorrhage excited.

BOOK REVIEWS.

A Text-book of the Practice of Medicine. By Dr. Hermann Eichhorst. Edited by Augustus A. Eshner, M.D. In Two Volumes. Philadelphia and London: W. B. Saunders & Co. 1901.

Those who are familiar with Eichhorst's Pathologie und Therapie will look with considerable interest upon this translation of his text-book of the practice of medicine. It follows substantially the same lines as the older work, but it is more condensed. Volume I begins with a description of the diseases of the myocardium. There is no chapter devoted to an introduction or to a general consideration, but the work plunges into the consideration of the special diseases of the different organs. In discussing the diseases of the myocardium, it is said to be impossible to recognize anatomic alterations in the muscle in many cases. In the treatment of weakness of the myocardium, the patient should be kept in bed and upon a milk diet. Among heart tonics we are told that digitalis leaves alone are worthy of confidence. The writer recommends digitalis leaves principally in the form of powder, and if they should not produce sufficient diuresis, something is given with them to act upon the kidneys. Alterations in the coronary arteries are believed to most frequently lead to inflammation and degeneration of the heart muscle. The various symptoms of valvular disease of the heart are carefully considered. In diagnosis of pericardial effusion, attention is specially directed to the gradual disappearance of the apex beat and a diminution of the intensity of the heart sounds. The possibility of confounding dilatation of the heart with pericarditis is referred to, but the impossibility of distinguishing between the two in some cases is not mentioned.

A chapter on diseases of the respiratory organs begins with a discussion of those of the upper respiratory tract. All of the ordinary diseases of the lungs are discussed. Hay-fever is spoken of as Bostock's catarrh, and to him is given the credit for first having described the disease in 1819.

In discussing inflammations about the cæcum, the writer groups together typhlitis, appendicitis, and perityphlitis. The relation of these conditions to inflammations of the ovaries and of the tubes in women is emphasized. An attempt is made to differentiate the varieties of inflammation about the cæcum by the symptoms. An excellent though brief discussion of the diseases of the liver, including those of the pancreas, is given. In the treatment of peritonitis it is advised that the patient be kept as quiet as possible. The diet should be limited to fluids, but there is no mention made of the necessity of entirely omitting food. Opium and morphine are recommended with the well defined idea of lessening the movements of the intestines and thus preventing the distribution of pus through the abdominal cavity. In the surgical treatment of peritonitis the earlier operation is undertaken the better will be the result.

In discussing diseases of the kidney, after the usual preliminary conclusions regarding albuminuria, blood, and other abnormal constituents of the urine, the writer divides the inflammations of the kidney into acute diffuse nephritis and chronic interstitial nephritis. A number of pulse tracings are given, together

with a single illustration of blood-corpuscles and casts, as found in a case of nephritis. The movable kidney is said to occur in pallid and emaciated women, and that it may occur as a result of tight lacing both in men and women, it being stated that vanity leads some men to wear corsets. A brief account of the diseases of the male sexual organs is given.

The chapter on diseases of the nervous system is one of the most complete and satisfactory in the whole book; indeed, there is no recent work on the practice of medicine that contains anything like as satisfactory a delineation of the nervous system.

A division is devoted to diseases of the skin, including the ordinary inflammations, and the parasitic forms. The various infectious diseases and the constitutional and metabolic disturbances, with those of the blood, fill out the remainder of the work.

The translation of Eichhorst's Practice of Medicine forms an excellent contribution to English medical literature. It will easily acquire the same standing in its English dress that the original has in Germany. The translating has been well done; with the exception of a very few slips, such as "preferably to be recommended" and "fat heart," the text has been rendered into direct and readable English. The binding in two volumes is an improvement over some of the massive text-books on the practice of medicine recently issued from the American press.

DISEASES OF THE INTESTINES. By I. Boas. Authorized Translation from the First German Edition, by Seymour Basch, M.D. New York: D. Appleton & Co. 1901.

The interest of the profession in the pathology and diseases of the alimentary tract has grown with the increase in our knowledge of the diseases of the stomach and esophagus. Of the intestines, because of their inaccessibility and the difficulty of judging of the effects of treatment, our information is much less; but little has been added since the days of Henoch, Bamberger, and von Leube.

The work opens with a brief discussion of the anatomy and histology of the intestines; beginning with the pylorus. Then follows a brief description of the physiology of the intestinal tract and of the various chemical reactions which take place in the tube.

Part I deals with the diseases of the intestines. In the matter of diagnosis, especial stress is laid upon the history which the patient gives of the illness, the latter sometimes being the only means of reaching a diagnosis because of the inaccessibility of the intestines to direct study. In the following order are discussed pain, meteorism, constipation, diarrhea, tenesmus, and peristaltic movements. Especial stress is laid upon the palpation of the abdomen, and the injunctions of the author in respect to this procedure cannot be too often repeated. It should be conducted in a warm room, with the abdomen fully exposed and all of the muscles relaxed so far as possible. At the same time the attention of the patient is to be directed as much as possible from the examination. While the dorsal position should always be employed, yet it is well to change the position of the patient, as sometimes this brings into view tumors which would otherwise escape observation. Rectal palpation is enjoined, and the long speculum of Herzstein is especially recommended for inspection of the upper portion of the rectum and sigmoid.

In the examination of the feces we are told that it is an integral factor in the diagnosis of intestinal diseases. For obvious reasons the critical examination of this excretion has been neglected. The writer recommends that the first examination should usually be made at the dwelling of the patient, and should consist of a simple inspection and the taking of such specimens for microscopical examination as appear pathological. Large quantities of feces are necessary only in cases where exact chemical analysis is desired. With certain intestinal parasites it is necessary to examine the feces fresh, and so far as possible at the body temperature. Two brief chapters describe the diagnostic value of stomach and urinary examinations in diseases of the intestines.

In the general therapeutics of intestinal diseases the writer discusses diet. In typhlitis and appendicitis he believes that the total withdrawal of food for one or more days is too extreme, and he recommends that the patients be allowed weak gruels. We doubt if this will commend itself to those who have treated cases of appendicitis by rest and the withdrawal of all food. Among the general remedies for intestinal diseases is massage, electricity, and lavage.

More than one-half the work is devoted to a general discussion of the special pathology of the intestines. There is a long chapter on acute and chronic intestinal catarrh, and a page and a half devoted to the treatment of membranous enteritis. The latter is vague and unsatisfactory; there is no reference to the use of oils, which in the hands of American physicians have been so successful in this condition. Ulcer, growths and obstructions, as well as appendicitis, are considered quite fully. On the whole, that portion of the work dealing with treatment is unsatisfactory because of a want of details and a reliance upon general statements. From the standpoint of diagnosis and statistics of intestinal disease, the work leaves nothing to be desired.

PRACTICAL SURGERY, FOR THE GENERAL PRACTITIONER. By Nicholas Senn, M.D., Ph.D., LL.D. Price, $6.00. Philadelphia and London: W. B. Saunders & Co. 1901.

As the title indicates, this book is thoroughly practical, and represents the operative experience of the author for the last twenty-five years. It is addressed especially to those practitioners whose work must be done in the village and farmhouse, and not in the well equipped metropolitan hospital. Special attention is paid to emergency surgery, including shock, hemorrhage, and wound treatment. The emergency operations that come under the care of the general practitioner are described in detail.

The work opens with a short chapter on emergency and military surgery. In it we are told that the proper definition of a surgeon is a physician who can operate, and that the evils of medical practice at this time are that physicians are too exclusively physicians and surgeons too exclusively surgeons. These defects must be remedied if our profession is to reach the highest standard of efficiency. The surgeon, we are told, if he wishes to practice his art with sense and credit to himself, must study general medicine. There is an account of the qualifications and duties of the military surgeon, in which stress is laid upon the physical condition of those in which the importance of having and maintaining a good physique is emphasized, that he may endure the fatigue of severe campaigns. It is said that he need not be an athlete, but he should be

able to walk twenty miles a day or ride forty, and then be able to do a night's work. The military spirit is commended to those who would enter the medical service of the army, both in the national and State troops—punctuality, courage, exemplary personal habits, especially temperance in eating and drinking, and the avoidance of liquor.

In the discussion of traumatic shock, it is recommended to administer two ounces of whiskey by the stomach or rectum one hour before the performance of a grave operation, and inject one-thirtieth of a grain of strychnine a few minutes before anesthetizing the patient. The writer describes his "talking" anesthesia for all operations on the respiratory passages above the larynx. This avoids preliminary tracheotomy. The common notion that children are less liable to toxic effects of chloroform than adults is pronounced to be a mistake, and the view that ether is safer in the hands of the untrained and careless is emphasized.

In the treatment of wounds, an eloquent description is given of the operative methods of the surgeons of fifty years ago, with their utter disregard of surgical cleanliness. To-day is emphasized the statement of Nussbaum: "The fate of the wounded lies in the hands of the one who applies the first dressing." The importance of treating every wound, whether large or small, in a surgical manner is emphasized. The method of repair of wounds by karyokinesis is described. In the matter of operating-rooms, the writer says that a splendidly equipped operating-room is desirable, but not essential. Many of the most brilliant victories in antiseptic surgery have been secured in old hospitals, with old-fashioned operating theaters. The wonderful results that crown the surgeon's work are not so much due to modern improvements in the operating-room as to more intelligent and efficient assistants.

An examination of the book shows that it is, as its title indicates, a work for the general practitioner. There is no exhaustive description of different operations. In almost all instances the writer recommends some method which he believes best adapted for the purpose in hand. Almost nothing is taken for granted, but every step in the various procedures is given. The work contains 1133 pages, and is a massive contribution to surgical literature.

ATLAS AND EPITOME OF OPHTHALMOLOGY AND OPHTHALMOSCOPIC DIAGNOSIS. By Professor Dr. O. Haab. Edited by G. E. de Schweinitz, A.M., M.D. Price, $3.00. Philadelphia and London: W. B. Saunders & Co. 1901.

ATLAS OF THE NERVOUS SYSTEM. By Dr. Christfried Jakob, with a Preface by Professor Dr. Ad v. Strumpell. Authorized Translation from the Second Revised German Edition. Edited by Edward D. Fisher, M.D. Price, $3.50. Philadelphia and London: W. B. Saunders & Co.

The series of books included under Saunders's Medical Hand Atlases are translations into the English of the famous Lehmann Medicinische Hand Atlanten, which include almost every department of medicine. The volumes are characterized by colored plates in which an effort has been made to secure the highest possible accuracy in coloring and drawing, the reproductions being made from original dissections. Each of the plates is accompanied by a full and accurate description of the illustrations, together with such an outline of the subject as is necessary for the completion of a text-book. Heretofore,

plates of the quality of those contained in the Hand Atlases have only been published as part of monographs with limited circulation and of very high price. The price at which they are offered to the reader has only been made possible from the fact of the large number which have been prepared, there being a special text prepared in each of thirteen languages, giving them a wide circulation.

The work on ophthalmology begins with a short description of the ophthalmoscope, together with the measurement of refraction by this instrument. Plates are given showing the normal fundus as it appears in blondes, brunettes, in youth and old age. A plate shows the white medullated nerve fibers in the retina, which are so often mistaken by the beginner for abnormal conditions. Defects in the choroid are illustrated by a beautiful reproduction of a coloboma. Circumscribed defects in the retinal pigments and choroids are also shown, as well as the retina of an albino. Twelve plates include appearances noted in atrophy of the optic nerve, not only as shown by the ophthalmoscope, but also upon eye sections which include the nerve. Thirty-five plates are devoted to changes in the retina.

The first portion of the atlas dealing with the nervous system is devoted to the structure of the human adult nervous system, as it is seen upon dissection. Part II includes the development and histological structure; Part III deals with the topographical anatomy of the nervous system; while Part IV, the larger division, deals with the general pathological anatomy of the brain, spinal cord, and the peripheral nerves. The plates in this volume are quite equal to those which have been issued.

OPERATIVE SURGERY. By Joseph D. Bryant, M.D. Volume II. New York: D. Appleton & Co. 1901.

The second volume of Bryant's Surgery contains over 600 pages and is devoted to operations on the mouth, nose, esophagus, peritoneum and connected organs, the thorax, neck, and the male sexual organs. The volume contains 827 illustrations, forty of which are colored.

If there are any surgical operations on the parts named which have escaped description in this work, the reviewer is unaware of the fact. As the title indicates, it is devoted exclusively to operative surgery, there being no description of pathology or diagnosis. The illustrations show surgical relations, and the descriptive text is exhaustive, leaving nothing to be desired on the part of the operator as a guide in the various surgical procedures. The application of instruments, the introduction of sutures, and other details of operation are given in the most exhaustive manner.

An extended review of the hundreds of operations described in this work is impossible, but to give the practitioner an idea of the arrangement of the work, we will choose the operations upon the rectum. In discussing proctectomy, the auther defines the operation and gives the method of preparation of the patient. Allingham's operation is then described, followed by some remarks on its results. The various forms of sacral proctectomy, including Kraske's operation, Kocher's method, and the modifications of the operation proposed by Tuttle, Levy, Rehn-Rydygier, and Borelius are given, together with Matthew's objections to the removal of the rectum by resection of the sacrum. The opinion of the author on various operations is contained in a paragraph of remarks which appear with almost every operation, or series of operations. It

is left to the judgment of the surgeon to decide which is adapted to the particular case.

A peculiarity of modern surgical nomenclature is shown in the work by the enormous number of operations that have been named after individuals. With the various modifications they amount to hundreds. Perhaps this is the best method of designating operations, but it imposes a serious burden on the memory.

The need of a volume devoted solely to operations is apparent. In a general surgery it is not possible to describe every operation with a wealth of detail necessary to guide one in its performance; again, a volume of this kind enables one to compare different procedures.

ESSENTIALS OF REFRACTION AND OF DISEASES OF THE EYE. By Edward Jackson, A.M., M.D. Third Edition, Revised and Enlarged. Price, $1.00. Philadelphia and London: W. B. Saunders & Co. 1901.

ESSENTIALS OF DISEASES OF CHILDREN. By William M. Powell, M.D. Third Edition, Thoroughly Revised by Alfred Hand, Jr., A.M., M.D. Price, $1.00. Philadelphia: W. B. Saunders & Co. 1901.

These two volumes of Saunders's Question Compends are upon the well known lines, namely, in the form of questions and answers. In the third edition of Jackson's work there has been some extension so as to make it more complete and symmetrical. A knowledge of the tests of vision as applied in the army, navy, and railway services, as well as in the schools, has been added. An injunction of Dr. Jackson regarding the use of this text-book might with advantage be applied generally to the study of medicine: "Once more the student is strongly urged to combine with his reading the study from nature of the facts to which the readings refer. No study of books ever made a physician or a surgeon. The most important part for the foundation of a practical knowledge of ophthalmology should be laid by reproducing, with a convex lens and a card, the essential facts of refraction; by studying minutely all the appearances of one's own eye with a mirror; and by utilizing every opportunity for examining with the ophthalmoscope the normal eye-ground, as it may be found in every healthy eye."

Powell's Diseases of Children has had some changes and additions to bring the subject within recent advances in this department. The section on infectious diseases and on infant feeding has been rearranged, and in part rewritten.

THE DIAGNOSTICS OF INTERNAL MEDICINE. By Glenworth Reeve Butler, A.M., M.D. New York: D. Appleton & Co. 1901.

This is one of the late ambitious works on physical diagnosis. We are at a loss to understand why the term "diagnostics of internal medicine" is used in the title, when "medical diagnosis" would have described the character of the work with clearness. It differs but little from the standard works now upon the market. In a subtitle the author says it is "a clinical treatise upon the recognized principles of medical diagnosis prepared for the use of students and practitioners of medicine."

The methods of gathering and preserving case records are given. The card system with the use of rubber stamps is said to be the most efficient and time-saving device.

Referred pains are carefully described and figured after the methods of Dana. The first portion of the work is devoted to an analysis of the various secretions and excretions, and a study of the organs by various physical methods. Part II, nearly equal in size to the first, is devoted to direct and differential diagnosis. In this way we have a consideration of the signs and symptoms of disease from two standpoints. The first answers the question, "What do the symptoms indicate?" The second answers the question, "Do the symptoms found form a combination characteristic of a recognized and named disease?" This seems to be the natural method; the physician has been led to suspect a certain disease, and it is only from the characteristics of that particular disease and the relation of the symptoms that a correct diagnosis is reached.

The work is finely illustrated, containing five colored plates and 256 engravings, the most of which are original.

PRINCIPLES OF SURGERY. By Nicholas Senn, M.D., Ph.D., LL.D. Third Edition. Price, $4.50. Philadelphia and Chicago: The F. A. Davis Company. 1901.

The third edition of Senn's work on the Principles of Surgery contains two new chapters, one on degeneration and the other on blastomycetic dermatitis. In other respects it is substantially the same work which appeared ten years ago. At that time it was easily the leading work upon the principles of surgery; in fact, up to that time there had been no special work dealing with the principles as distinguished from the practical applications of surgery. In the preparation of the first edition he kept in mind regeneration and inflammation, and the relation of bacteriology to the process of repair. Coming, as it did, at a time when surgical technique was being largely influenced by pathology and bacteriology, it was an epoch-making work. The present edition contains many added illustrations, some of which are in colors.

LEADING ARTICLES.

PRACTICAL BLOOD EXAMINATION.

There is a wide-spread feeling in the profession that blood examinations are difficult, the technique is complicated, and satisfactory conclusions can be reached only by those having special training. Unquestionably those who would do advanced clinical work upon the blood must understand the special technique, but practical and valuable examinations may be made with few instruments and a short expenditure of time. These furnish all the information that is needed in distinguishing certain morbid conditions. The same rule obtains in making blood examinations that obtains in studying the urine. It is invaluable in some cases, and as a routine examination should never be omitted in chronic cases.

Practical blood examination is concerned with:

1. The determination of the severity and type of an anemia, including the recognition of pernicious anemia.

2. The degree of leucocytosis and the type of leukemia if it exists.

3. The recognition of parasites.

These three objects are readily accomplished by the estimation of the hemoglobin and the examination of a stained specimen.

The estimation of hemoglobin can be made by several methods. The simplest and quite as accurate as any is that of Tallquist. The blood collected on a specially prepared porous paper is compared with a scale of colors and the percentage of hemoglobin read off. Apparently this seems an inaccurate procedure, but the results are quite as good as those obtained with the complicated and expensive Fleischl instrument. In both it is a comparison of colors, and the range of error in both methods is about ten per cent; but this is sufficient precision for clinical work. In securing the drop of blood it should flow without pressure, should be absorbed by the paper, and the comparison with the color scale made at the moment when the blood is dry.

Spreads can be made in two ways, either upon cover-slips by placing a drop between the two slips and then *sliding* them apart, or by spreading upon an object glass. They are then allowed to dry in the air and fixed by heating at a temperature of 100° to 110° C. Approximately this is found over a spirit lamp at a point

just below where the hand can be held. The cover-slip or slide must be heated for two minutes. It is important that the cover-slip should be perfectly clean, otherwise the blood will not adhere to the glass. The fixing may be done in absolute alcohol, but this requires several hours. Ehrlich's triple stain may be employed.

A simpler method than the foregoing, known as Jenner's, is a combined method of fixing and staining. It has been tried sufficiently to demonstrate its usefulness. The preparation of this stain is complicated, but it can be obtained from dealers ready for use. In using it very thin smears are made upon slides and dried in the air. Dye is poured on the slide, and at the end of two or three minutes it is washed until it is of a pink color. All of the cells, their nuclei, and various granules are differentiated. The malarial parasite is densely stained.

Practically it is only necessary to distinguish two types of anemia, the pernicious and secondary. The special feature of pernicious anemia is large nucleated red corpuscles—the megaloblasts. The stained specimen should be carefully searched for blasts—that is, nucleated red corpuscles. If the megaloblasts exceed in number the normoblasts, pernicious anemia may be certainly predicated. In addition there is in pernicious anemia a tendency to increase in the size of the red corpuscles and an irregular outline, poikilocytosis. It will be seen that the degree of anemia can be determined by a simple examination of a stained specimen without the difficult and time-consuming method of counting the corpuscles. This may be necessary where accuracy is desired in estimating the number of leucocytes, but as a matter of fact sufficient accuracy can be reached in examining a stained specimen. A marked increase in the number of white cells may be determined by examining a fresh unstained specimen, and if the leucocytes are counted, it only determines the total number, but does not tell us which of the three varieties—basophiles, neutrophiles, or oxyphiles—are increased. They exist in the proportion of about three basophiles to six neutrophiles and one oxyphile. If there is a marked increase in one of these it shows an increased leucocytosis. It may be that one variety is increased and others diminished. This can only be determined by a count with the Thome-Zeiss apparatus.

As a matter of fact the simple counting of a few fields and a comparison with normal blood give results that are sufficiently accurate for clinical purposes. It is not a slight departure from the normal that makes a diagnosis of leukemia, but that distinct and lasting change which is easily recognized by an examination of a stained specimen.

There are numerous other methods of examining the blood for the determination of microorganisms. With the exception of the filaria, spirillum, and plasmodium they have no application in clinical medicine. The malarial parasite is easily recognized in stained or fresh blood.

We have written the above in the hope that it will lead practitioners to employ a method which they have not been taught in their school-days, than which nothing can be more important. The recognition of the character of anemia and leucocytosis is of the greatest importance. The determination of these conditions is easily made, and they include about all that is of practical value for the clinician.

THE TREATMENT OF STAMMERING.

To the defects of speech commonly called stammering the physician gives comparatively little attention, many regarding it as an incurable defect in adults, and if it is presented to the practitioner in early life he confidently dismisses the parents with the assurance that the child will outgrow it. This want of study of what is really a grave defect, and one which produces much mortification and mental suffering, has led to the development of a large number of quack cures.

Sometimes stuttering is used as an equivalent to stammering, and some writers have attempted to make a distinction, but, as commonly employed among English-speaking physicians, the words have the same meaning. Kussmaul applied the word *stottern* to the whole class of speech defects, while *stammeln* only to certain derangements in articulation.

Most authors regard stammering as a disassociation between the mechanism of the glottis, or tone production, and the proper position of the oral mechanism for forming words. A moment's consideration of the physiology of speech will show that there is a marked analogy between the violin player's two hands and the action of the oral and laryngeal mechanism. The tone production is in the larynx, and corresponds to the bow hand of the violinist, while modifications of pitch and intensity are furnished by the palate, lips, and teeth, analogous to the violin player's left hand. In the majority of cases the stammerer is simply affected with a want of promptitude in the vocal mechanism. He attempts to speak when there is no air passing through the larynx, and consequently no voice. It is only after a number of grimaces and false starts that he

finally brings into action the muscles of respiration, and succeeds in passing a column of air through the larynx, which is subsequently modified into the necessary sounds. A natural division of stammerers would place them into (1) those in which there is want of promptitude of the vocal mechanism; (2) a want of promptitude in the oral mechanism; and (3) a possible variety in which there is a want of promptitude in both mechanisms. As a matter of fact, while theoretically the last two divisions are possible, they are almost never met with in practice. Hence the simplicity of the treatment, for all that is necessary is to teach the patient to breathe properly. There is scarcely a stammerer who cannot within the period of a few minutes be taught to speak some words without the slightest hesitation. All that is necessary is to teach them to properly vocalize: namely, to expire evenly, producing a tone with the larynx, to which is superadded a position of the oral mechanism necessary to produce the sound required. A few efforts of this kind will easily convince a stammerer that a cure is possible, and all that is required is a certain amount of practice on his part. This varies with different cases, slight defects being overcome in a few weeks, and others requiring many months of patient self-drill, under the direction of the physician.

The first lesson of the patient should extend so far as to explain to him the analogy between the bow hand of the violin player and that which manipulates the strings, and their relation to the larynx and the oral mechanism. When he has grasped this lesson fully, and has been taught to pronounce a word easily on which he commonly stammers, a very great step will have been taken in teaching him to speak without hesitation. His attention in speaking must never be directed to his mouth, but always to respiration. To this end reading aloud is one of the most important exercises. Where a patient has any musical talent, it should always be cultivated. Where there is great difficulty, the patient should begin every sentence by intoning the first syllable. After a certain amount of progress has been made careful note should be taken of the words which are still defective, and upon these he should be drilled.

Sometimes there is a tendency for the patient to attempt speech with an empty chest, but this is commonly overcome by the injunction to have him always speak with voice. In some cases a pupil may do better under a tutor than under the physician, providing the former has thoroughly mastered the mechanism of speech defects. The most of those who offer to cure stammering are mere empirics,

who have achieved a certain success in the application of certain formulæ which depend for their success upon the mechanism which we have described. The younger treatment is begun the better, providing the cooperation of the patient can be secured. It is a mistake to suppose that this defect will be outgrown. As a matter of fact, many patients do recover, but it is due to their conscious efforts to overcome the defect, rather than to any natural tendency to its disappearance.

CHRONIC PENTOSURIA.[1]

By pentosuria is understood the presence in the urine of a sugar containing five atoms of carbon, a substance named pentose. It is never present in normal urine. The pathologic relations of pentosuria are very obscure; in but five cases has chronic pentosuria been determined. Its principal interest lies in the ease with which it may be confounded with glycosuria and diabetes. In pentosuria a reaction occurs with Fehling's and Nylander's tests, and with phenylhydrazin. Fermentation or polarization alone determines that the reducing substance is not glucose—that is to say, a sugar containing six atoms of carbon.

The relations of pentosuria to diabetes are of practical importance. Can pentosuria be transformed into diabetes, or is it a symptom not related to glycosuria? A response to this question has been furnished by the interesting study of a case made by Bial and Blumenthal. They began by administering 100 grammes of glucose to a patient having pentosuria; it was found that this quantity was completely oxidized, none of it appearing in the urine. This shows the marked distinction between a pentosuric and a glycosuric. The former consumes sugar quite as well as a healthy person. An experimental diabetes was produced by the injection of 0.5 centigramme of phloridzine; from the urine 21 grammes of glucose was recovered, but there was no increase, and no diminution of the pentose. In every respect the phloridzine had acted as in normal individuals. These results seem to conclusively establish that there is no relation between pentosuria and diabetes.

Naturally the origin of pentosuria was sought in the diet, especially in those vegetables which contain pentose in considerable quantity. In Bial and Blumenthal's case it was found that the amount of pentose was not altered by changes in the food; on an ordinary diet, or when large quantities of carbohydrates were

[1] R. Romme: *La Presse Médicale*, July 27, 1901.

administered, from four to five grammes of pentose was regularly excreted. The possibility of pentose being formed by a transformation of nuclein seemed to be excluded, when 500 grammes of veal thymus, a substance rich in nuclein, was administered, but it caused no increase in the pentose excreted by the urine. These observations show that pentose is not caused by variations in diet, but is a specific alteration of nutrition.

Two hypotheses may be entertained regarding pentose—one that it is formed in the tissues, passes into the blood, and is excreted by the kidneys; or it is formed in the kidneys and immediately excreted. In the above mentioned case a reducing but non-fermentable substance was found in the blood, which resembled pentose.

Bial and Blumenthal assume that in the normal metamorphosis of tissue a certain amount of pentose is formed directly from the nuclein of the tissues, but under normal conditions the pentose is rapidly oxidized and is not found in the blood or urine. Under certain circumstances this substance is not oxidized; it accumulates in the blood and is excreted in the urine. There is an analogy between diabetes and pentosuria, but no direct relation; the one does not lead to the other.

To prove this hypothesis 50 grammes of arabinose; a substance composed almost exclusively of pentatomic sugars, was given to the patient whose case has been cited. Singularly only six grammes, or the usual quantity of pentose, was recovered from the urine. This showed that the pentosuric was quite as able to oxidize pentose absorbed from the intestine as he was any other form of sugar.

So far as pentosuria has been studied it has been clearly shown that it is not related to diabetes, that it is a distinct disturbance of nutrition, the clinical and pathological relations of which are very obscure.

RECOVERED PULMONARY TUBERCULOSIS.

How can we recognize a quiescent tuberculosis of the lung? Pages have been written on the method of diagnosing tuberculosis—the earliest signs of active tuberculosis and the method of treatment. Fortunately the agitation has resulted in a fairly definite procedure, but the diagnosis of a cured tuberculosis of the lungs and the advice which shall be given patients are subjects very briefly treated in the books.

If the acute stage of tuberculosis has been recognized and it becomes quiescent, the question of diagnosis is settled—that

arrested tuberculosis is very common is shown by the post-mortem records; from one-fourth to one-third of all autopsies show healed tubercular lesions. A considerable number of patients in the florid stage of phthisis give an account of an early hemorrhage, a cough or emaciation with pain in the chest or loss of flesh from two to ten years before, with an intervening period of good health. These are cases with a healed tuberculosis which has again broken out, or there has been a reinfection.

Unrecognized healed tuberculosis is probably more frequent than those in which the disease is diagnosticated and treated. From this it follows that there are a large number of individuals in every community who are the subjects of quiescent tuberculosis who are not and never have been suspected of having the disease.

The method of repair in tuberculous lesions differs according to the stage of the disease. If simple miliary infiltrations, they become minute masses of connective tissue; if larger, an inflammatory exudate forms about the mass, its interior desiccates, and ultimately caseation takes place. Within the connective tissue walls the bacilli are imprisoned; how long they maintain their virulence is unknown, but it is believed that their virulence will last long after they have ceased to react to staining agents.

The clinical type of arrested tuberculosis is difficult of definition. The symptoms depend upon the size of the lesion, its relation to the bronchial glands and other structures. There may be a bronchitis with more or less cough, but as the bacilli cannot be found in the sputum its true origin is not recognized.

One of the most striking symptoms is hemoptysis. A not infrequent statement is made that the patients have had consumption for years and died of something else; these are commonly cases in which there is a more or less continuous impairment of the health. In others there may be excellent general health for years and then an abrupt hemorrhage. These are easily mistaken for a primary infection of tuberculosis with the doubtful prognosis with which every primary infection must be regarded. The temperature and physical signs are the same, but the prognosis is much more favorable. These quiescent cases are immunized to some extent, and the system has already shown a capacity to deal with the bacillus when the affection was recent and in its most virulent stage.

These cases of recurrent hemoptysis were studied by the French clinicians twenty-five years ago. They were believed to be due to arteriosclerosis. Our later knowledge of the relations of tuberculous infection enables us to more correctly classify them among the arrested or quiescent cases of tuberculosis.

EDITORIAL COMMENT.

KOCH'S LATEST MANIFESTO ON TUBERCULOSIS.

The discoverer of the tubercle bacillus read an unassuming paper before the British Congress on Tuberculosis. In it he expressed a doubt as to the identity of the human and bovine bacillus, and supported his opinion by numerous experiments, which demonstrate quite conclusively that cattle are not susceptible to human tuberculosis. These experiments had been made before, but never to the same extent, and the question of the transmissibility to cattle might have been considered doubtful up to the appearance of this paper.

The question of transmitting bovine tuberculosis to human beings was practically left untouched, the author merely drawing some conclusions based upon the assumption that if the tubercular infection obtained access to the system through the alimentary canal, it would invariably involve the intestinal structures before it entered the general circulation. Assuming this to be a fact, attempts were made to inoculate cattle with tubercle derived from intestinal ulcers, the possibility being kept in mind that the origin of such a tuberculosis might be different from that which involves the lungs. The impossibility of transmitting the tubercle bacillus derived from such source to cattle having been demonstrated, it still does not show positively that such tuberculosis might not have been derived from cattle. It is well known that the culture medium alters the virulence of microorganisms and modifies other characteristics. Hence, a microorganism cultivated upon a human soil, if derived from cattle, might have lost its power of reproducing the disease in cattle.

Scientific physicians need not concern themselves especially with the vagaries of the lay press, but it is well to call attention to the exaggerations which they publish, that the public may be warned and avoid too hasty conclusions, or actions based upon them. Unfortunately, in this instance, the accredited correspondents of the lay journals were medical men, and thus conclusions not justified by Koch's paper were disseminated, backed by professional indorsement. It is therefore necessary to direct attention to exactly what Koch has demonstrated and what he infers. He has shown that human tuberculosis cannot be transmitted to animals. He has attempted to infer that bovine tuberculosis cannot be transmitted to human beings. The data upon which he bases the latter conclusion are very defective. The reasoning by which he would infer that the tubercular germ would necessarily attack the mucous mem-

brane of the alimentary canal before it did other organs of the body is by no means established. It is not even certain that tuberculosis of the lung always comes from the inhalation of the tubercle bacillus. A respectable minority of pathologists believe that infection by the lungs is almost invariably by way of the alimentary canal. The whole tendency of modern pathology in relation to infection seems to exclude the air as a conveyer of disease; surgeons have long since reached the view that contact infection is essential in the contamination of a wound, and every discovery that relates to the infections teaches the same rule. Koch, in drawing the conclusion that bovine tuberculosis could not be transmitted to the human, left out of consideration the enormous number of cases of bone and joint tuberculosis in which there are no associated lesions in the lungs or the alimentary tract. If the tubercle bacillus in these cases comes by the way of the intestinal tube, why does it not show itself there? If by inhalation, then why not always in the lungs?

The paper of Koch is a fairly weak contribution to the literature of tuberculosis, with the single exception of the exhaustive experiments relating to the transmission of human tuberculosis to animals. There is nothing in the article that would have attracted attention had other than the name of Koch been appended to it. Its appearance may be the basis of a demand for a modification of the laws relating to the extermination of cattle with tuberculosis. Even if it is shown that tuberculosis is not transmitted from the domestic animals to man, it would still be wise to maintain these laws in the interests of the cattle industry. Koch's experiments show that bovine tuberculosis is highly contagious among animals of the same species. Hence the elimination of the tuberculous from a herd of cattle is an economic necessity regardless of its influence on the public health.

ECHOES FROM THE BRITISH CONGRESS ON TUBERCULOSIS.

Not in many years, if ever, has there been such a startling announcement in a medical convention as was contained in the address of Professor Koch to the British Congress on Tuberculosis in London at the end of July. It was not only startling to the medical profession, but it came as a shock to the laity, whose dread of tuberculosis is scarcely to be held within bounds by the concord of specialists. To prevent misconception it is advisable to repeat the exact words of the distinguished German:

"Though the important question whether man is susceptible to bovine tuberculosis at all is not yet absolutely decided, and will not

admit of absolute decision to-day or to-morrow, one is nevertheless already at liberty to say that, if such a susceptibility really exists, the infection of human beings is but a very rare occurrence. I should estimate the extent of infection by the milk and flesh of tuberculous cattle and the butter made of their milk as hardly greater than that of hereditary transmission, and I therefore do not deem it advisable to take any measures against it."

Concerning these memorable words *The Lancet* said at once: "They have carried solace or given rise to astonishment, and even incredulity, in most parts of the civilized world." So great was the shock of their utterance that without loss of time a question was asked in the House of Commons whether in view of this dictum of Dr. Koch the government would relax its vigilance in the inspection of the supply of beef and dairy products.

Still more pertinent was the following incident. Among the delegates was Dr. Horace Manchester Brown, of Milwaukee. He sent a report by cable to the Wisconsin government and received this reply, which deserves to become historic in the annals of scientific inquiry: "Cable received; question considered; experiments begin to-morrow." The day after Koch had announced his heresy Sir James Crichton Browne, one of the imposing figures of British medicine, read this message from the chair of the Congress. He expressed his deep regret that it was hopeless to expect that the experiments in England would begin to-morrow.

The discussions on the floor of the Congress showed plainly that Koch stands against the world on this question. The opinions of the overwhelming majority who are opposed to the last views of Koch were most cogently presented by Prof. John McFadyean. He argued that Koch had founded his present statement on three premises, of which at least one is not well founded, and the others have little bearing on the question. He said that this faulty argument was not sufficient to overthrow the sounder position which Koch first communicated to science, and which in eighteen years has not been seriously affected by the experiments of hundreds of inquirers. He pronounced that there still remain reasonable grounds for regarding tuberculous cows' milk as distinctly dangerous to human beings.

These views were thoroughly and publicly indorsed by Professor Nocard, Professor Hamilton of Aberdeen, Dr. Ravenel of Philadelphia, Dr. Crookshank, and Prof. Sims Woodhead, each of whom briefly presented instances where bovine tuberculosis had been communicated to humanity.

A profoundly unfavorable impression was produced by the conduct of Professor Koch after the reading of his startling paper. In effect he fired his shot and ran away. After the reading of his paper he was no more seen at the scientific meetings of the Congress, where his new views were the all-absorbing topic. His place was vacant at the banquet and at the many social receptions in honor of the distinguished delegates. When he was sought for it was said that he was somewhere else or had some other engagement. Even when the King gave a reception to the foreign delegates Koch was absent; he was sought for sedulously for hours to secure his attendance, and finally it was learned that he was taking his enjoyment at a summer resort by the sea.

The manner in which the Congress was conducted is deserving of the highest commendation, and might well serve as a model for similar scientific gatherings. The munificence of public spirited men in England and the United States supplied a fund of some $18,000 to defray the expenses of this important gathering. This not only covered the cost of the meeting halls and the museum of pathology and bacteriology, but left a large allowance which was wisely expended in printing. The catalogue of the museum was in itself a considerable volume. Each paper read before the Congress was supplied to the delegates either as an abstract or in its full text. This was done in advance, so that it was possible to follow the exact words of the speaker as he delivered them. That this provision was most heartily appreciated was clear on the most casual glance about the auditorium, where the pamphlets were seen in almost every hand.

TREATMENT OF PNEUMONIA WITH SALINE INFUSIONS.

Recent mortality statistics show that pneumonia has displaced consumption as the leading cause of death. Some years ago a study was made of the comparative mortality under treatment at the beginning of the century, which employed bleeding, calomel, and emetics, the result of the comparison being unfavorable to the modern supporting theory of treating the disease. If we are able to estimate correctly the signs of the times in the treatment of this disease, the stasis theory is rapidly yielding to the conception of a toxemia. It was but natural to think that the laboring heart, in a case of pneumonia, should have its work enormously increased by the consolidation of the lung, and the consequent difficulty of carrying on the pulmonary circulation. A consideration of the effects of pneumothorax effusions in pleurisy and other conditions in which a portion

or even the whole lung was out of use, ought early to have taught that the mere mechanical hindrance to the circulation of the lungs was comparatively insignificant. A symptom that is present in over two-thirds of the cases, and in nine-tenths of those that are severe, is albumin in the urine, the large majority having this symptom associated with casts. This shows the profound toxemia which exists, and the laboring heart is not caused by a mechanical stoppage to the circulation, but by interference with its nutrition caused by a toxin. Elimination in typhoid and other systemic infections has long been recognized to be of value, but the stasis theory of pneumonia has greatly interfered with its application in the treatment of pneumonia. Inhalations of oxygen, which some have believed to be so efficient, were based upon the theory of a limitation of atmospheric air, though it is rare in pneumonia that more than one-fourth of the aerating surface is involved, and experience shows that from other causes not associated with toxemia more than one-half the entire surface of the air cells may be out of use, without seriously compromising respiration. The use of digitalis from the beginning of the disease is likewise based upon the theory that the heart had an extra amount of work to do, because of the difficulty in pushing the blood through the engorged lung. No one has seriously proposed to treat typhoid fever with large doses of digitalis, notwithstanding that the heart sometimes fails in that disease.

A study of a large number of cases treated on the old theories of elimination shows its efficiency in pneumonia. Of course, by the older physicians, this was carried to an extreme. Bleeding, calomel, and sometimes emetics were employed, regardless of the condition of the patient, but solely to combat a hypothetical condition which was supposed to be productive of inflammation. Notwithstanding these drawbacks, the results as shown in the mortality table were favorable, because whatever the errors of this treatment, it in effect secured a rapid elimination of toxic products from the blood.

At present there is a tendency to return to the treatment of the fathers, and we predict that with a recognition of pneumonia as a toxic disease, and not one in which the chief difficulty is stasis, there will result such a change in treatment as will materially lower the present frightful mortality. The excellent results achieved in the use of baths and friction and elimination by the kidneys will be supplemented by the use of normal salt solution injected hypodermically, or into the rectum, or transfused directly into a vein. If the latter method is employed, it must be followed by the abstraction of

an equal quantity of blood. Even in cases in which the solution is used by the bowels or under the skin, it would probably be better to supplement it by the withdrawal of a certain amount of blood; this eliminates the toxin and dilutes the blood serum and improves the nutrition of the heart muscle. Systematically tried in pneumonia, it will be found to be far more efficient in stimulating a laboring heart than digitalis or strychnine supplemented by inhalations of oxygen.

THE USE OF NORMAL SALINE SOLUTION.

The extraordinary success which has attended the use of saline infusions, and the rapid popularizing of the method, not only among the profession but the laity as well, will result in its being used in many cases in which it is contraindicated, and a few bad results may relegate a valuable method of treatment to unmerited obscurity; from which it will be resurrected to occupy its proper position in therapeutics—useful in certain conditions, but by no means a cure-all. The effect of saline infusions into a vein, in cases of shock accompanied by hemorrhage, is little short of miraculous. The pallid, shrunken, grayish features of the patient assume a more natural aspect, the absent pulse returns, the heart's action steadies, and the general improvement of the patient is so prompt as to be very gratifying. The most important indication in the use of infusion into the vein is that the temperature of the fluid should be equal to that of the blood, or above. If the temperature is below 100°, shock may be distinctly increased. The infusion into the vein, as ordinarily given, is much below the temperature that it should be. If a metal or glass tube is inserted into the vein, it of necessity cannot be very large; the flow of fluid through the rubber tube of the syringe cools it very rapidly, so that with ordinary room temperatures, if the fluid in the bag has a temperature of 105°, it actually enters the circulation of the patient at about 90°. This can be obviated by using one of the mechanical arrangements for warming the fluid while in the bag, and also while it is in the tube. If an ordinary rubber tube is employed, it may be surrounded with gauze saturated with hot water.

Under no circumstances should an infusion be made directly into a vein unless there has been a loss of blood. If the symptoms of shock are not accompanied by hemorrhage, the injection of the hot normal salt solution should be into the colon or into the subcutaneous cellular tissue. The injection of the colon is probably the most efficient, but here the temperature should be at least from 115° to 125°.

In the treatment of toxemia, saline solution will unquestionably play a most important rôle in the future. If the fluid is injected into a vein, the same rule should be followed, that there must be an extraction of blood. In cases of general sepsis, pneumonia, uremia, and other toxemic states, preceding the injection, there should be a free bleeding of the patient. If the blood is not removed, resort must be had to the hypodermic or the colonic injection.

In cases of emergency an approximately accurate solution can be prepared by adding a teaspoonful of table salt to a pint of water. A much more accurate formula, and one which more nearly represents the saline constituents of the blood, is that proposed by Dr. H. A. Hare, which is composed of the following ingredients:

Calcium chloride	0.25 gramme.
Potassium chloride	0.10 gramme.
Sodium chloride	0.9 gramme.
Sterilized water	1000 Cc.

This formula is prepared by Messrs. Parke, Davis & Co. in a concentrated solution. When properly diluted with boiled and filtered water it is ready for use.

THE OPEN-AIR TREATMENT OF DISEASE.

The success which has attended the treatment of tuberculosis by a continuous life in the open air has directed attention to this method of treating other diseases. Recently, before the Ontario Medical Association (*Canadian Practitioner and Review*, July, 1901), George H. Carveth spoke of the different diseases in which he had employed the open-air treatment. In some cases the patients remained indoors, but the windows were opened; in others beds were placed upon a veranda; and in still others the beds were placed in tents on the lawn. He at first experienced some difficulty in securing the consent of patients to such treatment, but after they became habituated to life in the open air they returned indoors reluctantly. He has treated cases of iritis, fracture, rheumatoid arthritis, tubercular disease of the spine, and typhoid fever in this manner. In a few instances the after-treatment of surgical operations, such as hysterectomy, and for the cure of hernia, was conducted in the same way.

Drs. Bryce and Freel spoke of the possibility of patients occupying tents in the severe winters of Canada. The tents should be floored, have a roof, and contain a stove. It is possible for a patient to be comfortable in such a dwelling with the thermometer twenty degrees below zero. A clergyman suffering from tuberculosis entirely recovered while occupying such a tent during the winter months.

There is no reason why an out-of-door life should not be employed in the treatment of other diseases than tuberculosis. It is practically a return to a primitive life, and abundance of fresh air; and particularly if the temperature is rather low, there is marked reaction produced in the system, by which there is a demand for increased quantities of food, with a corresponding improvement in digestion and nutrition. The action of the open air and of a lowered temperature in tuberculosis is to improve the nutrition, and this enables the organism to overcome the tubercle bacillus in cases of that infection. There is no reason why the same principle cannot be employed in overcoming other acute and chronic infections, and also in those conditions in which there is a failure of nutrition and assimilation, but in which there is no structural alteration in the organs by which their functions are hopelessly impaired.

H. N. Moyer, in a recent article on the treatment of neurasthenia, referred to the prompt cure that had followed two cases under "rest cure" that was conducted in part in the open air.

THE USE OF CACODYLATE OF SODIUM IN SKIN DISEASE.

E. Saalfeld, in the *Therapeutische Monatshefte* for June, 1901, speaks of the value of this remedy. Editorially, we have discussed the use of cacodylate of sodium as a method of giving arsenic, and condemned it because of the uncertainty in the action of the remedy. We claimed that the arsenic existed in close chemical union in cacodylic acid, and that in effect this salt of arsenic bore much the same relation to other salts of arsenic that calomel does to corrosive sublimate. This view is confirmed by numerous reports in the literature, in which occasional poisoning by arsenic was noted from the administration of comparatively small quantities of cacodylate of sodium, and also of the reports where enormous doses had been given without producing the physiological effects of arsenic.

We are still of the opinion that one of the most valuable salts of arsenic is the arsenate of sodium, which is devoid of many of the irritating properties to be found in Fowler's solution. The latter, as commonly found in the shops, contains a considerable quantity of arsenious acid which has not been converted into the arsenite of potassa. This is very irritating to the stomach. In the arsenate of sodium we have a definite combination of arsenic, which, if the water of crystallization is driven off, can be used with absolute precision in dosing arsenic, and it is unirritating to mucous membranes or the subcutaneous tissues.

In the opinion of Saalfeld, cacodylic acid is the most powerful

form in which arsenic can be employed in skin diseases. It is incontestably superior to Fowler's solution or to the forms of arsenic commonly used. He has employed the cacodylate of sodium and the cacodylate of iron, using them in the form of pills, or in a solution, commonly giving about ten centigrammes of the salt during the day. He has employed the drug in fifty cases. In only one patient, a hysteriac, was the drug badly borne by the stomach. The garlic-like odor of the breath which is spoken of by some writers commonly occurred in anemic patients having digestive disorders. The ordinary toxic symptoms of arsenic, such as diarrhea and dryness of the throat, were not noted. Two women who were especially susceptible to the ordinary forms of arsenic were able to take ten centigrammes of the cacodylate of sodium. The most remarkable results were reached by the subcutaneous injection of the drug.

SUPPURATION IN THE EAR IN ACCESSORY SINUSES.

Since the discovery of the relation of the appendix to "inflammation of the bowels," our knowledge of the infections of the peritoneum has been broadened. The idiopathic peritonitis has almost disappeared from our nomenclature, and if such a condition could be demonstrated at a post-mortem examination it would be regarded as almost a curiosity. Aside from direct injuries to the peritoneum almost all cases of inflammation have their origin in some solution of continuity in the intestinal tube, or focus of suppuration about the appendix or the Fallopian tubes.

It seems probable that similar views will be extended to inflammations of the brain and its coverings. The primary or idiopathic inflammations within the cranium are becoming rare, for almost every post-mortem examination shows that such inflammation was but an extension of infection from some of the accessory cavities.

Recent contributions to the literature show the very great frequency with which the ear is involved in the diseases of children, particularly the exanthemata. The older physicians were quite content with the statement that the child was doing well until the disease went to its head; after that there was little to do but write the death certificate. Modern research shows that the disease did not go to the head, but to the ear, with secondary involvement of the meninges of the brain.

The correspondence in anatomical structure and function between the serous coverings of the brain and those of the abdomen points to the close relation in their pathology. It is probable that the history of one will be repeated in the history of the other.

STOMACHIC VERTIGO.

There is a prevalent belief in the profession that in the large proportion of cases vertigo has its origin in the stomach. This seems to be on a par with the conception that attributes all pains in the extremities which are obscure to rheumatism. An accurate study of the clinical relations of vertigo shows that it is very rare in disorders of the stomach. Scores of patients with severe gastritis, tumors, or other grave lesions of the stomach, will tell their subjective sensations without ever mentioning vertigo. The very next case that comes to the physician complaining of vertigo will, in all probability, be sent away with a prescription for a digestive ferment, and the statement that his stomach is causing the trouble. Such views are due to mistaking cause for effect. Most attacks of migraine, if at all severe, are accompanied by vertigo, and with associated nausea and vomiting. In these cases the trouble primarily begins in the head, and not in the stomach. A stomach disturbance is frequently associated with blows on the head, there is the vomiting of cerebral tumor, and not infrequently nausea follows involvement of the middle ear. Many of these conditions are associated with vertigo; hence the association of stomach disorders with vertigo in the minds of the profession. As a matter of fact, the conditions which give rise to the vertigo are those which cause the disturbance of the stomach and not the stomach disturbance which produces vertigo.

The practical deduction from the foregoing is that every patient who complains of vertigo should have a thorough investigation made of the nervous system and ears, and in cases associated with headache, of the eyes. A critical examination of many cases will show that vertigo is almost never due to disorder of the stomach.

ABSTRACTS.

MEDICINE.

The Toxemic Origin of General Paralysis of the Insane.—

L. C. Bruce, before the Medico-Chirurgical Society of Edinburgh (*Lancet*, July 6, 1901), said general paralysis could be defined as a progressive degeneration of all the bodily and mental functions. The course of the disease varies greatly, in some the mental symptoms being most pronounced, and in others the motor. The disease is incurable, but remissions are by no means uncommon. The typical disease has several stages: (1) The patient is often acutely ill, with febrile temperature, loss of body weight, restlessness, excitement, and sleeplessness; (2) the patient becomes fat and lazy, and liable to congestive seizures; (3) the patient loses body weight and becomes demented and paralyzed.

In those cases in which the disease is steadily progressive, the alimentary system is invariably disturbed. In the second stage bulimia is generally added to the symptoms of the first stage, while in the third and last stage constipation, alternating with diarrhea, is the rule. The significance of these gastrointestinal disturbances has not been appreciated, as they are often masked by the mental symptoms. For several years the writer has carefully observed the temperatures of such cases, making continuous charts of from four to six months' duration. In a few steadily progressive cases the temperature never rose above normal. In others the temperature was irregular, febrile attacks occurring at long intervals. The most characteristic temperature in general paralysis is the recurrent febrile movement each one or two weeks. Usually on admission patients have had a febrile temperature of about a week's duration. This is followed by a remission of about three weeks, when the attack is repeated, with or without mental symptoms, followed in turn by a remission of about a month's duration. When the second stage is established these febrile attacks become more frequent and the remissions shorter. In the third stage of the disease the temperature tends to become subnormal, the febrile attacks being represented by a gradual rise from subnormal to normal. The explanation is that the patient has become exhausted and does not react. In the third stage the temperature is very irregular. Excluding congestive seizures, epileptic attacks, such febrile delir-

ium and rise of temperature can only be explained by a toxemia. Each increase in temperature represents the resistance of the body to some toxic agent.

The daily temperature of six cases of general paralysis with a leucocyte count was taken for a period of three or four months. Every rise in the temperature was accompanied by an increase in the leucocytes. During the first period of the disease the hyperleucocytosis was marked, amounting to from 20,000 to 30,000 per cubic millimeter. The greater the degree of leucocytosis, the longer the remission. In the second and third stages of the disease the leucocytosis still accompanied the rise of temperature, but the reaction was not so vigorous and the remissions were shorter. In a later period of the third stage the leucocytosis resembled the temperature in being very irregular, but not necessarily coinciding. In this late period of the third stage of the disease there were practically no remissions.

In one case of acute general paralysis a motile bacillus was found, and a stained blood film apparently contained streptococci. This is the only case in which a living organism was found in the blood, and it was thought to be accidental.

Remission was found to follow after erysipelas, pneumonia, and other infections, which were preceded by high and continued hyperleucocytosis. Another class of remissions occurred apparently spontaneously, and without obvious cause, during the course of the disease. In all cases in which there was improvement it was noted that the alimentary system became normal. In the early stage of the remission the number of leucocytes was higher than in health. As the remission became fairly established, the leucocytosis gradually diminished. The serum of such cases contained some antitoxic substance which was not present in patients in whom the disease was progressive, or in the serum of healthy persons. Seven out of ten cases during the remission gave a definite agglutinative reaction to the bacillus coli. The remissions were always marked by this hyperleucocytosis, which seemed to be nature's method of checking the progress of the disease, the leucocytosis in its turn producing some substances of the nature of an antitoxin, which protected for a limited time against further doses of the toxin.

The conclusion of the writer is that in the majority of cases of general paralysis there is a toxic poisoning derived from bacteria and absorbed through the stomach and intestines. Each febrile attack represents the toxins of bacteria, or their introduction into blood or

tissues, and during the remission the blood possesses some antitoxic substance.

To test this a patient suffering from general paralysis in the second stage had some blood drawn under antiseptic precautions. This blood defibrinated was injected, two cubic centimeters daily, for three weeks in two patients, one of whom was in the first stage of general paralysis and the other in the later part of the second stage. The first patient was so far improved that his friends insisted on his discharge, and at the end of two years he was supporting himself at his trade. The second case showed physical but no mental improvement, though the progress of the disease was definitely arrested for nearly two years. It was obviously impossible to continue treatment upon these lines, but it is the opinion of the writer that small subcutaneous injections of blood serum, from a horse immunized to the bacillus coli, continued for from three to four weeks, would produce artificial remission in the disease.

The conclusions of the writer are that a general paralysis is a disease directly due to poisoning by the products of bacteria whose point of attack is through the gastric and intestinal mucous membrane; the infection is probably a mixed one, but the bacillus coli is one of the noxious organisms. The result of treatment with serum taken from a case of general paralysis in a condition of remission in an early progressive case, points strongly to the fact that some form of serum therapy is the proper treatment for this disease.

Alcohol in its Medical and Scientific Aspects.—

The Medico-Chirurgical Society of Edinburgh (*Lancet*, July 13, 1901) at a recent meeting discussed the medical and surgical aspects of alcohol.

The discussion was opened by G. S. Woodhead, who said that they must arrive at an understanding as to what category alcohol should be placed in—a poison, a drug, or a food. If it is in all three, in which does it play the most important rôle? As a food, or even as a drug, does it play a part anything like so prominent as it does as a poison? Alcohol is a narcotic, protoplasmic poison; if it is to be used as a drug, it should be prescribed like other drugs, with a definite end in view, and some show of scientific precision.

Is alcohol a food? Few physiologists deny that alcohol is oxidized in the body and to that extent might supply a certain amount of heat, but no one will contend that the number of calories required by the body can be supplied by alcohol. It differs from fats and carbohydrates in being a protoplasmic poison. Ehrlich states that

the nutrition of the cell protoplasm results from a combination of certain proteid elements with the cells. These bonds or links are necessary, and they all belong to the nitrogenous element. Alcohol does not contain a nitrogenous element; hence it enters into combination with the protoplasm, but in a different fashion from the nutrient substances ordinarily utilized by the cell. Madden has pointed out that there is no evidence to show that alcohol is a respiratory food, or that it is converted into a reserve supply of fat; instead of protecting the nitrogenous tissues from undue waste, alcohol actually hastens the waste.

Another property of alcohol, which it has in common with phosphorus, is its avidity for oxygen, and it is probable that to this property its proneness to produce fatty degeneration is due. Under ordinary circumstances fat and carbohydrates taken into the body are readily oxidized by the respiratory oxygen. With alcohol the process is much more active, and it appears to divert to its own use oxygen which would go to protect nitrogenous tissues from undue waste. It interferes with the normal oxidation of carbohydrates and fat, and sets up abnormal metabolic processes, which end in the destruction of protoplasm and the accumulation of fatty degenerative products. This change is best seen in the heart muscle, but it takes place throughout all the muscles of the body, which later become the seats of secondary fibrous and calculous changes, leading to premature senility. Animals under the influence of alcohol have a lessened resistance to infection; this is true whether the doses of alcohol are large or small.

In relation to phthisis, it has been shown that alcohol predisposes to this disease. Dilatation of the heart and alteration in the myocardium are of frequent occurrence as a direct result of alcoholism. It alters the systolic output of the heart and increases the diastolic pressure and the tendency to dilatation long before palpable changes can be determined in the tissues.

Upon nerve cells alcohol causes a gradual disappearance of the protoplasm in the cortex, the cerebellum, and the spinal cord, the same as are noted in profound poisoning with diphtheria and tetanus.

The indictment of Dr. Woodhead was largely sustained in the prolonged discussion which followed. The most enthusiastic supporter of alcohol, Prof. T. R. Fraser, did not place it high as a food substance. Its only value is in tiding over an emergency, such as when a patient is unable to retain food in the stomach and death threatens. This makes it serviceable in crises.

T. S. Clouston said that alcohol is the greatest factor in producing disease of the higher nerve centers, accounting for from 20 to 25 per cent of cases. J. O. Affleck said that alcohol is with him an emergency remedy. He regards the statement of Professor Fraser as very strong, and open to serious question. The pneumonia of the drunkard often ends fatally, because of his decreased resistance induced by alcohol, and yet alcohol is given in large doses in pneumonia. He has been greatly disappointed in its use in such cases. James Ritchie showed from the statistics of life insurance that the lives of total abstainers are better risks than those of moderate drinkers. Claude Ker said that he believes that alcohol is useful in diphtheria.

In closing the discussion, Dr. Woodhead said the strong point in the argument was the admission by Dr. Fraser that alcohol should be taken in medicinal doses and only for a short period. He believes that alcohol should be used only as a drug, and the indications for its use should be clearly defined.

Spread of Tuberculosis from Animals to Man.—

The *Journal of the American Medical Association* of July 27, 1901, publishes concurrently with the *British Medical Journal* the address of Robert Koch before the British Congress on Tuberculosis, London, July 23, 1901. Koch makes the general statement that tuberculosis is a preventable disease, and it should be recognized as such as soon as it is definitely associated with the parasite which causes it. He regards the sputum as the main source of infection, as by far the majority of cases of tuberculosis are those of the lungs, and he concurs in the view that the germ must have reached the lungs by inhalation. As to the source from which the germs have come, there is a doubt. He is quite certain that the particles of moisture ejected by consumptive persons may convey the bacilli, and thus infect persons, but he also believes that when pulverized and dry they may be carried in the form of dust. In relation to the lower animals as conveyers of infection to man he has a grave doubt. True tuberculosis has been observed in poultry and cattle, but infection from poultry may be left out of account; therefore the only kind of tuberculosis which is transferable to man would be that from cattle. He early expressed a doubt of the identity of bovine and human tuberculosis. During the last two years he has carried out a number of experiments upon cattle. The animals were first injected with tuberculin and then inoculated with human tuberculosis; in some it being injected under the skin, in others in the peritoneal

cavity, and in still others in a vein. These animals were fed with tuberculous sputum almost daily for four months, and four inhaled large quantities of tubercle bacilli. None of these cattle showed signs of tubercular disease, and they gained considerably in weight. From six to eight months after the beginning of the experiments they were killed, and in their internal organs not a trace of tuberculosis was found. At the places where injection had been made small suppurative foci were found in which a small number of bacilli could be detected.

A similar series of experiments made upon healthy animals with bacilli derived from tuberculous cattle gave very different results. After an incubation period of about a week the severest tuberculous disorders broke out in all the infected animals. It made no difference how the infection was conveyed to the animal, tuberculosis very soon developed; they became weak and thin, and some of them died after a month and a half to two months. After death extensive tuberculous infiltrations were found at the place where the injections had been made, and in the neighboring lymph glands. Where the bacilli had been injected into the peritoneal cavity, tuberculosis of its lining membrane was noted. A feeding experiment was made upon swine, resulting in the development of tuberculosis in those which were fed upon the bacilli derived from diseased cattle, while those that were fed upon large quantities of human tubercle bacilli were not infected. Similar experiments gave like results in asses, sheep, and goats.

The question of the susceptibility of human beings to bovine tuberculosis is one difficult of solution, because direct experiment cannot be undertaken. He assumes that if bovine tuberculosis is common in human beings, it must have its origin in the alimentary tract. Attention is called to the fact that upon post-mortem examination primary tuberculosis of the intestinal tube is rare. He has studied the question by obtaining the tubercle bacilli from such cases and injecting them into animals; the results were negative. These considerations justify him in assuming that while not absolutely proven, yet a strong probability is raised that there is a distinction between human and bovine tuberculosis, and that human beings are rarely, if ever, affected with the bacillus derived from cattle.

Hepatic Inadequacy in Relation to Irregular Gout, and its Treatment.—

I. Burney Yeo, in the *Therapeutic Gazette* of July 15, 1901, says that he understands by hepatic inadequacy that sort of disturbance in the functions of the liver which stops short of actual disease of

the organ, and yet is accompanied by some impairment of the general health. In those cases he would include "irregular gout." His views are mainly based on clinical observation, and he holds that these, if accurate, must take precedence of laboratory experiments. "Experimental work upon gout is a maze of contradictions, as irritating to the brain as the hypothetical showers of uric acid crystals in which some of the observers seem to believe. Observation *in vitro* may be mutually destructive of opposing theories, but they can never be regarded as decisive of vital operations unless they are, in all respects, consistent with clinical, *i.e.* vital, facts."

The clinical evidence, he holds, is opposed to the conclusion that gout is due to uratic precipitation in the tissues; hence the popular idea that the treatment consists in the administration of "solvents of uric acid" is erroneous. Attention is called to the experimental data of thirty years ago, in which it was determined that the salts of mercury do not increase the secretion of the bile; notwithstanding that assertion, they are still popular as cholagogues, and, in fact, they do remove large quantities of inspissated bile from the intestines.

Notwithstanding the experimental evidence to the contrary, it has been amply demonstrated that the alkaline sodium salts have an effect upon the hepatic functions, and do favorably influence gouty conditions and dietetic glycosuria. The writer mentions a patient, a member of a gouty family, a large consumer of meat, who has taken sodium bicarbonate for twenty-five years. He has been free from goutiness and able to digest large quantities of animal food. Such examples as these lead him to the belief that the alkaline sodium salts do not precipitate the sodium biurate in the tissues, as has been claimed by the chemical experimenters. They probably exercise a remedial effect on the digestive functions, and on the nutritive changes in the tissues, irrespective of their direct solvent action on sodium biurate.

In the treatment of the gouty it is not safe to dogmatize too much about diet. A vegetarian diet may satisfy some. He has seen the most troublesome gouty headaches disappear, with a corresponding improvement in the general health, upon an exclusive diet of pounded meat, with liberal draughts of hot water. The success of this diet is probably due to the ease with which it is digested. Food, limited in amount, meaning as it does digestive ease, means also freedom from goutiness. Much also depends on the quality and the character of the food. It is a popular impression that gouty persons take too little exercise, but this is often not the case. Some

are addicted to excessive muscular activity which leads to the ingestion of large quantities of food, which still further complicates the problem of elimination. In closing he says: "Let us be observers and students of nature, but don't let us dictate to her. Laboratory work should be the handmaid of clinical medicine, but clinical facts must not be distorted to accord with laboratory results. In reading the reports of much of the experimental work which has been published in regard to gout, I have been forcibly reminded of the words of Omar Khayyam:

> "Myself when young did eagerly frequent
> Doctor and Saint, and heard great argument—
> . . . . . but evermore
> Came out at that same door where in I went."

Periarthritis Nodosa.—

F. R. Sabin, in the *Bulletin of the Johns Hopkins Hospital* for July, 1901, reports a case that was thought to be this exceedingly rare condition. The first case was described by Kussmaul and Maier in 1866. Since then four cases have been reported, all of which have been examined post mortem and found to present nodules on the arteries of the muscles and viscera. The case reported by Sabin corresponded clinically with the cases that have been described, but no autopsy was made. The patient was a woman 32 years of age, with a negative family history. She had been married eleven years and had three children. Four years before admission she had an attack of dropsy. Prior to that time she had been well. A diagnosis of perinephritis and endocarditis was made at that time. There was no history of lues, and she had never taken alcohol. The illness from which she died began in August, 1900, two and one-half months before admission. During the summer she had loss of appetite, vomiting, and weakness. This was followed by shooting pains in the arms and legs. She said that the veins in her arms and legs were swollen and tender. At the same time she had pain in the gastric region. In the middle of September she had severe attacks of vomiting, and was confined to her bed for five weeks. Two weeks before her admission general tenderness developed, and she was unable to move in bed on account of pain. Once during the attack she had a rash like measles over the trunk, which lasted four or five days. On admission she was anemic, skin sallow, with brownish pigmentation of the face and hands. The small muscles of the hands were atrophied. The lungs were negative, the heart normal, with the exception of a soft systolic

murmur in the pulmonary area. The arteries showed an extreme grade of annular sclerosis. Both radials were calcified, so that no pulsation could be felt at the wrist. The brachials were beaded and could be felt as a series of annular rings. The mammary artery was calcified and appeared like a string of beads crossing three or four ribs. In each popliteal space there was a row of small, hard nodules about the size of split peas. Two were excised, and proved to be made up of lime salts; they were just beneath the skin, where the vessels were too small to make out their relations. Scattered over the abdomen were similar nodules, which seemed to be in the muscles. The blood examination gave a secondary anemia and a pure leucocytosis. The temperature was normal throughout and the pulse rapid. The urine was scanty and the excretion of urea very low. There was always pain over the epigastrium.

Unfortunately a post-mortem examination could not be made, hence the diagnosis is uncertain, but the clinical features closely resemble the reported cases of this rare disease.

Relation of Pelvic Disease to Insanity.—

John C. Doolittle, in the *Virginia Medical Semi-Monthly* of July 12, 1901, gives the results of his personal observation on the relation of diseases of women to the development of insanity, in the State Hospital for the Insane at Independence, Iowa. During the past five years he has examined 650 women, a little less than 300 of whom have received gynecological treatment. Only a few received surgical treatment. Electricity, local applications, tampons, and antiseptic douches form a very considerable portion of the non-surgical treatment. In his judgment not one of these patients recovered from the mental derangement solely through the gynecological treatment. In many cases the patients seemed to recover from their mental and pelvic diseases simultaneously. In almost all cases the pelvic diseases were benefited by treatment, usually accompanied by an improvement of the general health.

During a period of two years every woman admitted to the hospital was given a gynecological examination. In 66 per cent of these cases some pathological condition was found in the reproductive organs; in 70 there was a lacerated perineum; in 68, lacerated cervix; in 32, erosion of cervix; in 3, cervical polypus; in 18, flexion of the uterus; in 20, other fixed displacements of the uterus; in 40, subinvolution; and in 3, uterine myoma.

His conclusions, based not only upon his own experience but upon a study of the work of others, are that pelvic disorder is often

associated with mental disease and may be a factor in its causation, but it is seldom, if ever, the sole cause of insanity. No characteristic psychosis is associated with pelvic disease in women. No relation is to be found between the intensity of the mental disturbance and the severity and extent of the pelvic disease. Pelvic diseases in insane women should receive the same treatment as in the sane, and for the same reasons. Surgical operations on those of unstable and defective mental organization, and on those hereditarily predisposed, often result unfavorably and leave the patient in a worse mental condition than before the operation; this is especially true where there is no local pelvic disease. The best results from surgical operations may be expected in the hysterical and those who have marked disturbances of menstruation.

Ankylostomiasis.—

H. B. Allyn and M. Behrend, in *American Medicine* of July 13, 1901, refer to the severe anemia which is found among native Egyptians, in the East and West Indies, South America, and Europe. The prominent symptoms of this condition are colicky pains, irregular bowels with occasional attacks of diarrhea, nausea, and more rarely. vomiting. There is great weakness in some cases, with emaciation, and the circulatory symptoms found in the extreme anemias, dizziness, palpitation, and hemic murmurs are noted. This disease has received a variety of names and seems to have been recognized by physicians in the tropics in the early part of the eighteenth century. The parasite was discovered by Dubini in 1838, but its relation to this form of anemia was not discovered until 1854.

While the disease is not common in the United States, there is a possibility that it may be more frequent than is believed, because the intestinal discharges are not examined for the parasite, and consequently the anemic condition may be regarded as primary. Chabert, in 1828, possibly refers to this disease, as he mentions a severe form of anemia present among negroes on the Louisiana plantations. Other Louisiana physicians have referred to the same thing. In all, eight cases have been reported in the United States, in which the parasite has been identified. The gastrointestinal symptoms are variable; in some cases there is constipation, and in others diarrhea. Much depends upon the number of the parasites. Very soon after the parasite develops the anemia is pronounced, its type being chlorotic rather than that of pernicious anemia. As the disease progresses the appetite fails and may be replaced at times by an

abnormal craving for dirt or some other article, which has often been mistaken for the cause of the disease. In the treatment of the condition thymol is the most efficient remedy. It should be given fasting, and followed by a purgative, preferably castor oil. The stools should be examined after the administration of the thymol. Vigorous treatment along these lines results in great improvement and cure of the majority of the cases.

Experimental Yellow Fever.—

Walter Reed, James Carroll, and A. Agramonte, in *American Medicine* of July 6, 1901, give some additional details of their experimental work upon yellow fever at the Sanitary Station near Quemados, Cuba. In four instances of yellow fever they produced the disease by injecting the blood of one yellow fever patient directly into the circulation, thus proving that the parasite is present in the blood at least during the early stages of the disease. It also proves that the passage through the mosquito is not essential in the life history of the parasite, though it is the usual method of infection for human beings. This establishes the parallelism between yellow fever and malarial fever; the latter may also be produced by the injection of blood from an infected person, though the usual method is by a mosquito bite. In all, they have succeeded in conveying yellow fever to twelve individuals by means of bites of contaminated mosquitoes, and to four persons by subcutaneous injections of blood. The average period of incubation in those affected by the mosquito bites was ninety-four hours, and for those in whom blood was injected sixty-seven and one-half hours. Experimentally they have shown that the average period of incubation of from four to five days, as stated in the text-books, is approximately correct, though it is apparent that the period may be prolonged. In several of their cases incubation exceeded five days. The severity of the disease varied very much in different cases. Of those bitten by mosquitoes, two were severe, six moderate, three mild, and one very mild. Of the four cases produced by the injection of blood, one was severe, two moderate, and one mild.

Two Cases of Syphilis Contracted in a Surgical Operation.—

L. Jullien (*Medical Press*, July 3, 1901; *New York Medical Journal*, Aug. 3, 1901) reports the case of a surgeon and his assistant who while operating were both wounded by a needle which penetrated the index-finger. The needle was flat with sharp edges, and the wounds bled freely. A few days later, when changing the

dressing on the patient, they noticed an ulceration, and on the following day a generalized roseola developed, and on examining the genital organs they discovered a syphiloma.

Twenty-six days after the inoculation the surgeon was seized with a fever and a general feeling of discomfort. He kept his bed for twenty-four hours, the temperature reaching 102.2°. At the same time the site of the puncture became painful; the scar of the puncture displayed a tendency to reopen, with some superficial ulceration. Two days later there appeared a roseolar eruption and moist papules; plaques also formed on the tongue. Arthralgia developed within the next two months.

The assistant showed no sign of infection until the thirtieth day, when he was taken with a fever. No changes were noted at the site of the inoculation. The roseola did not appear until the thirty-third day.

The cases prove that the blood of a syphilitic is infective, but probably only during the period from primary infection until the secondary symptoms develop. It is probable that the patient who was operated upon had had the primary infection about thirty days. In a direct inoculation such as this the lymphatic system escapes. In these cases there was no glandular enlargement until after the period of efflorescence. Jullien adds that this mode of invasion of syphilis, which was theoretically studied by Oltramare, has never, to his knowledge, received such conclusive confirmation, and insists on the far-reaching importance of these observations both from the purely practical and scientific points of view.

The Viability of the Plague Bacillus.—

M. J. Rosenau, in Bulletin No. 4 of the Hygienic Laboratory, U. S. Marine Hospital Service, gives an extended study of the bacillus of plague and of its viability under various experimental conditions which were devised to represent as nearly as possible the conditions under which the bacillus might be supposed to exist in merchandise and personal effects. The conclusions of the writer are in accord with those which have been reached by German investigators. Temperature is an important factor in the viability of the bacillus; it retains its vitality at a temperature of 19° C. and below for a long time, but dies quickly, especially when dry, at a temperature of 37° C. It dies in a few days when dry, even in the presence of albuminous matter, providing the temperature is above 30° C. It may retain its virulence for months when dry, if the cold is below 19° C. Sunlight kills the organism within a few hours, providing

it shines directly upon it and the temperature is over 30° C. The virulence of the bacillus is lost before its vegetability.

The conclusions are that it is unlikely that dry merchandise would carry the infection. Food products may carry the plague; the bacillus lives a long time in milk, cheese, and butter. It dies quickly on the surface of fruits and prepared foods. The organism may live a long time in water, but the disease is not water-borne. There is absolutely no danger of spread of plague by the mails. The colder the climate, the greater the danger of conveying the infection on bedding, clothing, food, and merchandise. The plague bacillus is destroyed by sulphur fumigation and by formaldehyde gas in strengths in which these fumigations are usually employed. The gases can only be depended upon as surface disinfectants. In disinfecting ships, warehouses, dwellings, and other places infected with rats, sulphur is better than formaldehyde, as it destroys rats and fleas.

Ophthalmic Examination for Kidney Disease.—

Edward Jackson, in the *New York Medical Journal* of July 27, 1901, says that one-half the cases of Bright's disease show noticeable changes in the ocular fundus; a distinct albuminuric retinitis occurs in at least 10 per cent. The gravity of this symptom is shown in the collective cases of Belt, who found that 72 per cent died within the first year and 90 per cent were dead at the end of the second year. A symptom of such frequency and significance is worth looking for, and the examination should be repeated, for some of its most characteristic appearances are transient.

The examination to be thorough requires a mydriatic, as the pupil is commonly small. The most characteristic changes are near the macula. Atropine should not be used for dilating the pupil, but a four-per-cent solution of cocaine, or homatropine.

The most constant symptom is alteration in the retinal veins. They are dilated and tortuous, especially those which rise above the macula. Parts of the vein may be hidden in a swollen, hazy retina, so that it presents the appearance of an extravasation. Hemorrhages may be found anywhere in the retina, and may even extend into the vitreous. Swelling and opacity of the retina are usually confined to isolated patches or to the region surrounding the optic nerve. The color of the patch may vary from a dirty white to a grayish-blue. White spots arising from fatty degeneration are most characteristic when arranged in rows radiating from the center of the macula. Large spots are confined to this part of the fundus, or to the neigh-

borhood of the optic disk, but small ones may be found in all parts of the eye-grounds. White streaks are occasionally seen along the arteries or may wholly replace them. The optic nerve is often reddened and opaque; it may even be swollen until it resembles the choked disk of brain disease.

A Physical Sign of Alcoholic Intoxication.—

M. B. Damon, in the *Northwestern Lancet* of July 15, 1901, describes Quinquaud's sign of alcoholism. The test is made by directing the patient to separate the fingers and rest them firmly across the observer's hand at right angles. For the first two or three seconds nothing unusual is noted, but then follows slight blows as if the bones of each finger were thrown back suddenly, the one upon the other, and struck the palm. The crepitations vary in character according to the individual; sometimes a slight rubbing and again a true crackling, which resembles that of a joint affected with dry arthritis. The pressure on the observer's hand should be moderate; too firm pressure produces fatigue and masks the sensation. In fifty-two epileptic women this sign was obtained but once, and then in the case of a woman of 30 who had been committed a score of times for drunkenness. The sign has been sought for among paretics, but in those who had never used alcohol it was absent. In presumably normal individuals outside of an asylum the sign was frequently found, but never among the total abstainers. It was not always present in those who drank moderately.

The conclusions of Aubry are quoted to the effect that the sign is pathological, and it may be present in those who have indulged but little in alcoholics. It disappears rapidly after abstinence in some, but persists for a long time under similar habits in others. In some habitual drinkers it is absent.

Croupous Pneumonia.—

G. W. Morris, in the *American Journal of the Medical Sciences* for June, 1901, gives a study of 500 cases of pneumonia taken from the Pennsylvania Hospital records. A table is given showing the site of the lesion, the number of cases, the percentage frequency of the different lesions, and their mortality. The right lower lobe was involved in 29 per cent of the cases, and the mortality was 18 per cent. The left lower lobe was involved in 24 per cent, with a mortality of 13 per cent. The middle lobe and apices of the lung were infrequently affected. The highest mortality was when both lower lobes were affected, the percentage being greater than when

the whole of one lung was involved. Both apices also gave a high mortality-rate. Pneumonia was most frequently found in the first and third decades of life, and an analysis of the temperature records shows that cases with high fever were less dangerous than those with less reaction. In one-half of the cases the disease began with a chill. The termination of more than one-half—that is, 301 cases—was by crisis, and in 74 by lysis. In the largest number of cases crisis occurred on the eighth day, next on the seventh, then on the ninth, then the sixth, and then the tenth. A sort of pseudocrisis was noted in 57 patients, which was characterized by a fall of temperature to 99° and a prompt rise to 102° and above; 245 of the patients had albumin in the urine with casts, while 78 showed albumin alone.

The Increase of Cancer in Massachusetts.—

W. F. Whitney takes for the subject of the Shattuck Lecture for the current year, "The Alleged Increase of Cancer in Massachusetts" (*Boston Medical and Surgical Journal*, July 18, 1901). The writer has carefully studied the question as to whether the increase, as shown by the death returns in Massachusetts, admits of other explanation than an absolute increase in the disease. The rate of increase in the mortality from cancer if held for 225 years would at the end of that period show a death-rate from cancer that would correspond to every person over 30 years of age. The increase in the recorded deaths he attributes to better diagnoses and registration, because the ratio of deaths of individuals over 30 years of age that come to autopsy gives a death-rate from cancer of eight to nine per cent. Hence, the mere increase in the number registered as causes of death does not mark an increase in the death-rate of the disease itself, but increased certainty of recognition. Comparison with other States and countries shows the rate for Massachusetts to be about the same.

Pernicious Anemia.—

H. C. Colman, in the *Edinburgh Medical Journal* for March and April, 1901, presents an inquiry into the after-history of twenty-two cases of pernicious anemia. He regards the disease as essentially an increase in the destructive action of the liver upon the red blood-corpuscles. He discusses the numerous theories that have been advanced to account for the disease, without coming to a definite conclusion as to which is the best. Pernicious anemia is a distinct disease, and not merely an advanced stage of anemia. As a result of his investigation of the after-history of twenty-two cases, he is fully

in accord with Addison as to the prognosis of the disease, regarding it as inevitably fatal. The entire number of twenty-two cases were "cured" by various means; arsenic and salol in the larger number, and in the others various forms of intestinal antiseptics combined with bone-marrow and iron. Ten of these died of the disease, three were lost sight of, and two only were known to be living at the time the investigation was made.

Pathology of Paralysis Agitans.—

P. F. Schwenn (*Deutsches Archiv für Klinische Medicin*, Bd. 70, Heft 3–4, June 30, 1901) describes a carefully studied case of paralysis agitans which came to autopsy. The section revealed no changes in the central nervous system, though a careful microscopical examination was made. There were distinct changes in the muscles, the interstitial connective tissue and its nuclei were increased. The changes in the muscles were not uniform; in some places they were marked, and in others less prominent. The muscle fibers themselves were not changed, the transverse markings showing distinctly. In no instance were they found degenerated. In the nerves and blood-vessels of the muscles no changes were noted.

The findings justify the view that paralysis agitans is a progressive disease of the muscles, which invades one group after the other until the entire muscular system is involved. Attention is called to a tendency of late to regard Parkinson's disease as of muscular origin, Leyden and Goldscheider having recently expressed themselves to this effect.

Elimination of Urea in the Sputum.—

M. Delore, in *Le Progrès Médical* of July 6, 1901, says that urea is commonly supposed to be the special excretion of the kidney, but sometimes it is found in the saliva, the tears, and the vitreous humor, but in very small proportion. The case which he reports was that of an arthritic who had had influenza three months before coming under observation, and as a consequence of being kept in a room in which there were several other patients affected with influenza, had an aggravation of his symptoms. At the end of a month and a half the sputum amounted to about twenty grammes in a day, and was only raised after considerable effort, and was accompanied by an acrid, burning sensation in the throat. Suspecting that the sputum might contain ammonia, some of it was evaporated in the air, with a consequent formation of the large leaf-like crystals characteristic of urea.

General Paralysis and Syphilis.—

W. H. B. Stoddart, in the *Journal of Mental Sciences* for July, 1901, gives an exhaustive discussion on the relation of syphilis to general paralysis. He comes to the conclusion that the evidence is overwhelmingly in favor of the view that syphilis is the most important underlying factor in the development of general paralysis. The only argument of any importance against this view is the fact that the disease is rare in uncivilized communities where syphilis is rife. It is important, therefore, that we should ascertain, if possible, what element in civilization aids syphilis in causing general paralysis. Syphilis is a less severe disease among the civilized than among the uncivilized. Syphilis remains untreated among uncivilized people, but among the civilized the patient is saturated with mercury for a period of nearly two years. Marschalko has demonstrated that tertiary syphilis is not caused by mercury, but the relationship of mercury to general paralysis has never been investigated.

Cerebral Localization in Melancholia.—

Bernard Hollander, in the *Journal of Mental Science* for July, 1901, says that there is a relation between the central area of the parietal lobe and melancholic states of the mind. He has been able to collect over fifty cases of injury to the parietal tuberosity and its neighborhood which were severe enough to involve the brain and its membranes, and which were accompanied by melancholia. One-half of these were relieved by surgical operation. Melancholia was the type of disease in tumors involving this region, and the same thing was noted where the pathological changes were inflammatory.

SURGERY.

Treatment of Varicose Veins and Ulcers.—

A. W. Morton, in the *Pacific Medical Journal* of June 1, 1901, says that in varicose veins a vicious circle is established in the venous system of the lower extremities. When the veins have reached a certain size, instead of the blood returning to the heart through the saphenous veins it passes in the opposite direction and returns by the popliteal into the femoral. A part may pass through the varicose connecting branches and again enter the saphenous circle. In this way the blood loses its nutritive elements, the pressure in the veins being so increased as to impede the arterial circulation; hence ulceration and consequent infection follow. Palliative

treatment, such as rest, support, and cleanliness, only gives temporary relief.

Before operating on varicosed veins the gangrenous tissues should be removed by the curette and moist antiseptic dressings applied, with a suitable local treatment for the eczema. The day before the operation the patient receives the usual tub-bath, and the limbs are thoroughly scrubbed with sterilized water and green soap. A moist gauze bichloride dressing is applied over the entire limb. The part from which the grafts are to be taken is prepared in the same way, except that no oiled silk is placed over the dressing, that the moisture may evaporate. The operation is commonly conducted under spinal cocainization. The legs are elevated, the dressings removed, and the rubber elastic bandage applied near the groin. Above this a tourniquet is applied, and then the rubber bandage is removed. The incision is made along the saphenous vein, extending from the saphenous opening to the upper third of the leg, where it meets a circular incision extending around the leg similar to that made in Schede's operation, except that in four places one inch of skin is left intact. The saphenous vein is separated and ligated with catgut at the point where it joins the femoral, and is removed as far down as the circular incision. Care should be exercised to contuse the tissues as little as possible. After the removal of the vein the skin is held in apposition by adhesive plaster which is incorporated with suboxide of zinc, and which has been carefully sterilized. Skin-grafting is then employed to close the defects left by the varicose ulcers.

The writer claims that this operation completely destroys the backward circulation, aud he prefers the adhesive method of closing the wound for the reason that the tissues are so much weakened that stitches are liable to be followed by necrosis, which will necessitate their removal before union has taken place. The use of adhesive strips to unite the skin admits of more rapid operation than where sutures are employed. In leaving four spaces of one inch each in the circular incision of the leg, there is overcome that tendency to contraction which is sometimes followed by such unfortunate results.

Anesthesia in Heart Disease.—

In the *American Journal of the Medical Sciences* for August, 1901, is a symposium upon anesthetics in heart disease. The first article is by John M. Finney. He has studied the action of anesthetics in 142 cases suffering from different forms of heart disease.

He compares the behavior of these cardiac cases with others operated upon for similar affections, but without cardiac complications. Among these were eight cases of myocarditis. To seven of these ether was given, and to one chloroform and ether. Five took the ether badly and three took it well. In the case to which chloroform was administered it had to be discontinued and ether substituted. In the myocardial affections only do anesthetics exert any markedly bad effects. In valvular disease their influence is slight but appreciable, and in functional diseases insignificant.

Alfred Stengel says that in cardiac disturbances after operations it is difficult to determine whether the result is due to the anesthetic or to the operation. In many cases of recognized cardiac disease the administration of ether has a temporarily beneficial effect upon the cardiac condition. It is not improbable that in some of these the secondary effect is an unfavorable one, the symptoms occurring after a lapse of some days. Certain results following operations, such as pneumonia, embolism, and gastrointestinal disturbances, may be due to a weakened state of the heart, resulting either from the operation or from shock. The unfortunate effects of anesthetics are due to disturbances of the nervous mechanism, or the essential muscular automaticity, rather than to organic changes in the myocardium, endocardium, or pericardium.

H. A. Hare, in discussing the safest anesthetic to use in diseases of the heart, says that where there is high tension the administration of ether is contraindicated, though he regards it as the safest anesthetic. Atropine is neglected as a stimulant to the vasomotor system; it checks the excessive secretion in the upper air-passages and lessens the tendency to edema of the lungs. The manner in which the anesthetic is administered is of greater importance than the choice of the drug. Nitrous oxide is contraindicated in valvular degeneration. He has seen two cases of fatal apoplexy after the administration of this gas. In the presence of myocardial and valvular disease, if an operation must be performed, the patient is better off with an anesthetic than without it. In cases of heart disease where local anesthesia was employed, he has noted an extreme degree of shock which gradually improved as the local measures were discarded and a general anesthetic substituted.

Treatment of Hypertrophy of the Prostate.—

Orville Horwitz, in the *Philadelphia Medical Journal* of June 22, 1901, gives his experience based on 161 operations for the relief of senile hypertrophy of the prostate gland. He is thoroughly con-

vinced that the Bottini operation is the best method of dealing with this condition. In a number of his cases there has been a slight tendency to recurrence, necessitating a second operation in a few. The number and length of the incisions depend upon the size of the enlarged gland; in cases in which the enlargement is small, a median and two lateral incisions are all that are required; with considerable enlargement three cuts are necessary in the prostatic floor. It is rare that it is necessary to incise any but the lowermost portion of the gland, but it may be necessary to go higher in those cases in which there is general enlargement with projection backward and pouching. Hemorrhage is much more likely to follow an incision in the upper portion of the gland. With a marked projection of the middle lobe backward, four cuts should be made in the lower portion. Two V-shaped incisions into the middle lobe will permit it to fall backward out of the way, and it finally becomes atrophied. In making the incisions, the finger in the rectum is employed as a guide. Before the current is turned on this method of palpation will show whether a fold of the bladder has been caught in the beak of the instrument. Care should be taken not to press the rectum up against the blade, lest a rectovesical fistula be formed. Everything depends upon good instruments, a properly working battery, and a thorough mastery of the technique of the operation. In suitable cases the Bottini operation is the safest and best radical operation thus far devised for the relief of prostatic hypertrophy. It is indicated in all forms of hypertrophy, except where there is valvular formation, or where there is an enormous overgrowth of the three lobes, associated with tumor formation, giving rise to a pouch both below and above the prostatic gland. Where the bladder is hopelessly damaged, together with a general atheromatous condition of the blood-vessels associated with polyuria, the results are negative.

An Improved Method of Treating High-seated Cancer of the Rectum.—

W. F. Weir, in the *Medical News* of July 27, 1901, calls attention to the Kraske operation and the difficulty of making it a satisfactory surgical procedure. He prefers the operation devised by Maunsell; in it the abdomen is opened above the pubis and a loop of tape is passed through the rectum and out at the previously dilated anus. By these means it was hoped to pull down the neoplasm. In performing this operation Weir found that it was very difficult to deliver the tumor. He has modified it by separating the bowel along the sacrum and liberating it down nearly to the tip of the coccyx, and

in front to the edge of the prostate. This permits him to tie around the bowel, three inches from the anus, a couple of iodoform tapes about an inch apart; the intestine is then cut through, and being free, is readily raised out of the abdominal wound. The severed end of the rectum is then seized by forceps and everted through the anus. Removing the tape from the everted lower portion of the bowel, a forceps is carried through it into the pelvis and the upper bowel brought down within its clasp. At this stage of the operation the lower end of the upper portion of the rectum is brought out through the everted lower portion. A couple of needles passed through the invaginated end of the bowels near their margins allow easy suturing with the knots inside the bowel, after which the bowel is replaced. This operation in three cases has given satisfactory results. Two of the cases recovered, and at the end of nine and eighteen months respectively show no signs of recurrence. A third case died of diarrhea, apparently not connected with the operation.

A Lipoma Removed from the Cheek under Medullary Narcosis.—

A. W. Morton, in the *Philadelphia Medical Journal* of July 6, 1901, reports a case of a patient aged 65, decidedly obese, with a lipoma of the left cheek of twenty-five years' standing. The case was complicated by hemorrhoids, varicose veins of the lower extremities, aortic insufficiency, an enlarged, dilated, and irregular heart, and a chronic nephritis, the urine containing large quantities of albumin and many casts. The lower extremities were dropsical; the patient had been a constant drinker for fifteen years. For five years the tumor, because of its size, had caused trouble, and the patient had repeatedly consulted surgeons regarding its removal, but all had declined because of the heart trouble.

The tumor was finally removed under medullary narcosis. Half an hour before the cocaine injection was given the patient received a quarter of a grain of morphine and a thirtieth of a grain of strychnine hypodermically. The cocaine was injected in the second lumbar space, twenty drops of a two-per-cent solution being employed. In three minutes the analgesia was complete in the lower extremities; it extended to the fingers in ten minutes, and over the head in twelve minutes. The tumor, which weighed two pounds, was easily removed; and the hemorrhoids were cauterized. During the operation the patient was free from pain; there was slight nausea, but no vomiting. There was no shock, and the patient appeared to be in better condition at the close of the operation than at the beginning.

Injection of Strychnine into the Wall of the Left Ventricle in Asphyxia During Anesthesia.—

R. D. Pinnock, in a communication from the Ballarat Hospital, Australia, reports a successful case of direct injection of strychnine into the wall of the left ventricle in a patient apparently moribund during anesthesia. The operation was upon a Chinaman aged 57, for a recurrent sarcoma of the glands of the left side of the neck. The first few whiffs of chloroform were followed by rapid cyanosis. During the early portions of the operation the respiration failed twice. A. C. E. mixture was given, and was being administered at the time of the third failure of respiration, when the heart's action failed, and artificial respiration was resorted to and continued for twenty minutes. Two hypodermic injections of one-thirtieth of a grain of strychnine were given. Rapid and intermittent pressure was made over the heart. At the end of twenty minutes there was no visible cardiac pulsation, and to the medical men present the patient appeared to be dead, and it was thought useless to continue the artificial respiration further. At this point the wall of the left ventricle between the fifth and sixth ribs was injected with ten minims of a solution of strychnine containing one-fifteenth of a grain. In seven or eight seconds pulsation could be felt in the femoral artery; simultaneously the patient gave a convulsive gasp, and in a few minutes, under renewed artificial respiration, began to breathe. The operation was then rapidly finished.

Suture of Wounds of Large Blood-vessels.—

A. E. Halstead, in the *Medical Record* of July 20, 1901, describes a case in which, following the removal of a tumor of the breast and a dissection of the axilla, the axillary artery was cut obliquely, through about two-thirds of its circumference. Violent hemorrhage followed, which was controlled by placing the index-finger of the left hand under the artery and pressing it against the clavicle. At the time of the operation all the branches of the axillary artery had been severed, with the exception of the circumflex, so there was practically no chance of the collateral circulation being established, if the artery was ligated. Under the circumstances, the only chance of saving the arm was to suture the artery. While the circulation was controlled by pressure of the left index-finger, four interrupted catgut sutures were passed through the wall of the vessel and tied. This effectually closed the opening in the vessel, and no hemorrhage followed the removal of pressure. The perivascular connective tissue was then united over the wound in the artery with a fine catgut

suture. The radial pulse was immediately restored and was quite as full as that of the opposite side. The patient made a good recovery from the immediate effects of the operation, and there was at no time disturbance of the circulation in the arm. Two months later the radial pulse on the side operated was equal in volume to that of the other side.

THERAPEUTICS.

Von Ruck's "Tuberculinum Purificatum."—

W. S. Hale, in the *Albany Medical Annals* for August, 1901, gives the results of a single experience with von Ruck's preparation. The patient came to him in January, 1900, complaining of pain and tenderness of the nose. There was a thick discharge that had persisted for four weeks. A small piece of necrosed bone had come

FIG. 1.—Roof of mouth and upper lip showing ulceration.

away. The nose was red and the triangular cartilage had disappeared. There was a large ulcer of the left ala, and ulceration of the uvula. There was no history of luetic or tubercular infection. A mixed antisyphilitic treatment was followed by an extension of the disease. A grayish-white patch appeared in the anterior palatine fossa, beneath which dead bone could be felt. A diagnosis of stomatitis aphthosa was made. One of the incisor teeth came out with a loosening of the two adjacent teeth and an extension of the ulceration. The condition of the upper lip and roof of mouth is shown in Fig. 1. Microscopical examinations of the discharges at this time showed tubercle bacilli.

Koch's "new" tuberculin was then used, beginning with $\frac{1}{500}$ milligramme and increasing to four milligrammes at the end of five weeks. During the initial doses there was no rise of temperature, but there was malaise, anorexia, and nausea. Larger doses were followed by chills. A dose of three to four milligrammes was followed by palpitation, coldness of extremities, and extreme pallor.

FIG. 2.—Ulceration of the septum and ala.

Under the "new" tuberculin the older ulcerations showed a tendency to heal, and an enlarged lymphatic gland disappeared. During the administration a new ulcer at the junction of the hard and soft palate appeared, which was checked but not healed by lactic acid locally.

FIG. 3.—Thinning of the septum.

A further consultation led to the diagnosis of a mixed syphilitic and tubercular infection, and a renewal of the mercury and iodide of potassium. Under this treatment there was an extension of the ulceration and an increase in the discharge.

Von Ruck's preparation arrived May 25, and $\frac{1}{20}$ cubic centimeter was added to four minims of a 20-per-cent solution of glycerin and water. A dose of the solution equivalent to one-fifth cubic centimeter of the remedy was injected. There were no constitutional symptoms or soreness at the site of injection. The dose was rapidly

increased, and there was soon a cessation of the ulceration and a tendency to cicatrization. The patient was up during the entire treatment. June 7 all visible ulcers had healed. The necrotic bone was removed, resulting in a free opening from the mouth to the nose. A loosened tooth was removed, and an artificial denture

FIG. 4.—Artificial denture for closing the opening in the palate.

FIG. 5.—Defect in the dental arch.

(Fig. 4) carrying two teeth fitted, which effectually closed the opening in the hard palate. There was a slight drawing down of the tip of the nose due to contraction of the septum.

The preparation used was not the same as von Ruck's watery extract of tubercle bacilli.

Suprarenal Gland for Relief of Pain.—

An editorial in the *Therapeutic Gazette* of July 15, 1901, says that the extract of suprarenal gland has been used in the relief of congested areas in the nose and throat, and of the eye; the relief

from the congestion afforded by its application has caused a cessation of the pain. The opinion is expressed that the preparation has no power of numbing the nerve fibers themselves, but the relief which it affords is due entirely to the cessation of the hyperemia. The experience of E. A. Peters, who applied it to a recurrent cancer of the breast, is mentioned. Permanganate of potassium and orthoform had given no relief, and even the application of cocaine did not arrest the pain. Painting a solution of suprarenal gland over the growth at nine o'clock at night gave the patient complete relief until six o'clock the next morning. In a case of stricture of the esophagus, probably due to cancer, relief from pain was secured by sipping slowly a teaspoonful of the suprarenal extract before going to bed. A case of tuberculosis of the larynx was relieved by a spray of a ten-per-cent solution of suprarenal extract. A case of periodontitis in which cocaine, iodine, carbolic acid, and chloroform had all been tried with little effect, was given much comfort by the application of a pledget of wool soaked in a ten-per-cent solution of suprarenal extract, placed between the lips and the gum, being renewed every two to six hours.

A New Method of Making Tannin Available as an Intestinal Astringent.—

Albert C. Barnes and H. Hille, in the *Philadelphia Medical Journal* of July 20, 1901, say that the disadvantage attendant upon remedies employed for astringent action in the intestinal canal is that they undergo chemical changes in the gastric and intestinal juices. Anything that is intended to act upon the intestinal mucous membrane must pass the stomach unchanged. Tannic acid is acknowledged to be astringent for mucous membranes, if it can be brought chemically unchanged in contact with them. When tannic acid is administered internally, but a small portion reaches the intestines, and the local action upon the stomach causes grave functional disturbance of that organ. For this reason kino and catechu are better borne than tannic acid; in these preparations the tannin is combined with certain colloid substances which diminish the local action on the stomach.

Gottlieb prepared an albuminate of tannin which resisted to a certain extent the acid of the gastric juice. The writers have undertaken to improve upon this product by a combination of tannin with a nucleoproteid, which should prove more resisting to the action of the gastric juice, but readily liberate the tannin when brought in contact with the alkaline juices of the intestine. Such a body they

have succeeded in preparing, which comes in the form of a yellowish-brown tasteless powder containing 50 per cent of tannic acid. It is insoluble and does not precipitate albumin. Experiments show that it gradually evolves its tannin in the alkaline intestine, thus making it possible to bring the local astringent action of tannin in contact with the whole of the intestinal tube. The effects of the remedy were tried upon fifty calves suffering from the profuse diarrhea incident to an exclusively milk diet. The remedy was administered in 60-grain doses at intervals of two or three hours; in most cases the diarrhea ceased in forty-eight hours.

The Best Way of Prescribing Calomel as a Purgative.—

This is the topic for the current prize essay symposium in the *New York Medical Journal* of July 27, 1901. The majority of the men who take part agree that calomel should be administered in small doses. Adrian Landre commonly gives calomel in tablet triturates of one-half grain each, beginning in the afternoon at about four o'clock and continuing them each half-hour until four grains have been taken. This is followed by a Seidlitz powder the following morning. He believes that Wood's theory of the action of calomel is correct, namely, that it escapes into the intestines and is precipitated in the form of gray oxide. The alkaline juices of the intestine are capable of decomposing only a small quantity; hence the advisability of giving the repeated small dose. Sodium bicarbonate assists in this change, but he does not employ it where he uses tablet triturates, because they cannot always be obtained fresh. On keeping them a long time they undergo a change and become of a gray color, losing the effect that a recently prepared powder always possesses. He always follows the calomel by a cathartic. The advantage of a small dose is that it often quiets an irritable stomach when everything else is vomited. In giving calomel to children he uses freshly prepared powders, always giving it with sodium bicarbonate and sugar of milk. This is followed by one or two drachms of castor oil the following morning.

Treatment of Hay-fever.—

H. H. Curtis, in the *Medical Record* of July 13, 1901, makes a further contribution to the treatment of hay-fever, based on the administration of certain plants and flowers that are supposed to excite the disease. His first case was that of a woman who was so susceptible that to pass a florist's would bring on a severe attack of dyspnea accompanied by cyanosis. He began by giving her an

infusion of roses, which enabled her to tolerate the odor of that particular flower. Another patient who had an idiosyncrasy for ipecac was able to inhale the drug after it had been administered. These experiences led him to secure a large quantity of ragweed, from which a tincture and fluid extract were prepared. The drugs were obtained too late in August of last year to admit of an extended application of the treatment. A number of bottles, however, were sent out, and thirty-four replies were received. In eighteen cases there was complete recovery, and four reported considerable improvement, while twelve were negative. His conclusions, as far as they are justified by results up to date, are that about 60 per cent of the cases that are dependent upon ragweed as an exciting cause may be immunized. A preparation of ragweed is, in a majority of cases, an adjunct of great value in the treatment of hay-fever. It is possible that a tincture of goldenrod or some other plant may be found efficacious in those cases in which the ragweed seems to have no appreciable effect.

Sulphur in the Treatment of Dysentery.—

G. E. Richmond, in *The Lancet* of June 15, 1901, says that the ordinary treatment of dysentery by sulphate of sodium necessitates that the patient should come under observation early in the disease, before much ulceration has taken place. The ipecac treatment is also of value, but it necessitates that the patient be kept in bed and all food excluded. He has substituted for both these methods the administration of twenty grains of sublimed sulphur combined with five grains of Dover's powder to be given at intervals of four hours. Two case histories are given; in one the dysentery had lasted for eleven days and the temperature was 103.4°. Under the sulphur treatment there was marked improvement in the first twenty-four hours, and in two days the motions had become decidedly fecal in character. Another was an obstinate case of dysentery that had lasted for five weeks and was cured immediately by the administration of sulphur and Dover's powders. It is not contended that sulphur is the only treatment for dysentery, but it is a valuable addition to our stock of remedies for this distressing complaint.

Restoration of Consciousness in Diabetic Coma by Injections of Bicarbonate of Soda.—

Lepine has recommended massive injections of bicarbonate of soda in the treatment of diabetic coma. Rondet, in the *Lyon Médical* of July 7, 1901, reports the case of a boy suffering from acute diabetes in deep coma. An effort was made to inject sodium bicar-

bonate into the veins at the elbow. It was not possible to engage the tube in the lumen of a vein, consequently three subcutaneous injections were made—one into the deltoid region, another into the abdominal wall, and a third into the buttock. In all the injections amounted to about one pint of distilled water in which 600 grains of sodium bicarbonate was dissolved. Very soon after the injections there was a partial return of consciousness, the patient slept during the night, and on the following morning recognized his relatives, when he again showed a tendency to relapse into unconsciousness. The injections were repeated, there was again a return of consciousness, which lasted about twenty-four hours, when deep coma supervened, and the boy died in an hour.

In the discussion Lepine spoke of the objections to the hypodermic method, stating the liability to subcutaneous abscess in diabetes was great. The intravenous injections are devoid of this danger.

Clinical Notes on Adrenalin.—

Norton L. Wilson (*Laryngoscope*, July, 1901) during the summer of 1900 began experimenting with adrenalin, having secured one of the earliest samples of this product. He has had an extensive experience with it in operations upon the nose and throat. He notes that within an hour or two after an operation there will be some hemorrhage, but it is not more than if adrenalin had not been given. If it is desired that there be no hemorrhage, a five-per-cent solution may be given the patient to use at home for two days. It is valuable in the treatment of acute inflammations of the nasal mucosa where the outlets of the accessory sinuses are occluded. It contracts the mucous membrane, the openings become patulous, and drainage is facilitated. Adrenalin may be used in combination with cocaine or holocaine. It avoids the toxic effects of these drugs by delaying absorption, but at the same time does not interfere with their local anesthetic action. Adrenalin should not be used in powder, as it causes sneezing and is much more irritating than when used in solution.

The Treatment of Osteomalacia.—

Rudolf Schmidt, in the *Wiener Klinische Wochenschrift* of July 4, 1901, gives a review of the different views which have been held regarding the treatment of this affection, and a report of two cases in which relief was obtained by the persistent use of the hot-air bath. One of the cases was in the third pregnancy, and the disease

became very pronounced. In all fifty-nine baths were used, of a length of one and one-half hours. At the end of this treatment the patient was able to return to her home and attend to her household.

The second case was that of a patient in her ninth pregnancy, 49 years of age, who for five and a half years after coming under observation had complained of a pain in the back and difficult locomotion. At the time treatment was begun she was bedridden. At the termination of the treatment she was so far improved that she had no more pain, there was no tenderness of the bones or sternum, and there remained only slight pain in the back. She was able to look after her household.

The efficiency of the treatment is thought by the author to be due to the erythema of the skin caused by the hot air, by which there is brought about a rapid improvement in the circulation in the periosteum and medulla of the bones.

Mercurol in the Treatment of Gonorrhea.—

Clarence Martin, in the *Cincinnati Lancet-Clinic* for July, 1901, says that he has used irrigations of permanganate of potassium with more or less success in the treatment of this disease. In some cases the silver salts have been effectual, but on the whole he has found nothing quite as satisfactory as mercurol. He first used it in those cases in which the permanganate of potassium irrigations did not give relief. In some he used irrigations with a solution of mercurol, 1 to 1000 or 1 to 1500. In others it was employed with a hand syringe in a strength of from two to three per cent. He says it is not irritating and it has a peculiar antagonistic action upon the germ. Under mercurol thick purulent discharges become thinner and the quantity rapidly lessens, and in a period of from fifteen to twenty days the discharge ceases. By the occasional use of a sound and the mercurol solution, a cure is generally effected in from twenty-eight to thirty-five days. While this was the typical course in his cases, some presented complications, but he believes that on the whole mercurol is a most satisfactory drug in the treatment of gonorrhea.

Heroin in the Morphine Habit.—

M. B. Ahlborn, in the *New York Medical Journal* of August 3, 1901, speaks highly of heroin as a substitute for morphine in those habituated to the latter drug. In cases taking twelve grains of morphine a day he commonly employs two grains of heroin hydrochloride as a substitute. Associated with this are increasing doses

of strychnine and cannabis indica, beginning with one-thirtieth of a grain of strychnine and increasing the dose up to tolerance; he has found the latter remarkable in some cases, giving sometimes as high as a grain a day of strychnine. He has found that the treatment relieved the craving for the drug, and at the same time the patients were free from pain. In cases where the morphine had been taken hypodermically he used the heroin in the same way, and when it was taken by the stomach it was administered in solution by the mouth. He is convinced that heroin may be substituted for morphine without establishing a habit of using heroin. The general tonic treatment should be persisted in and the heroin gradually withdrawn.

Static Electricity in the Treatment of Sprains.—

L. C. Stanford, in the *Medical News* of July 20, 1901, reports nineteen cases of sprains treated by the application of static electricity. The current was generated by a Holtz machine of large size. The patient was placed on an insulated platform connected with the negative pole of the machine; an electrode connected by a brass rod with the positive chain giving the spark. After the circuit has been completed, the length of the spark being from two to four inches, the application is made over and around the painful area by the positive pole. The séance lasts from ten to fifteen minutes. For sprains with little or no effusion the spark is a satisfactory treatment. In cases where there is much effusion, as, for example, in synovitis of the knee, the application, while relieving the pain, seems to have little effect. In these cases it was of marked benefit after the effusion was removed. The treatment is much less effective in chronic than in acute cases. Sometimes a considerable reaction occurs in the joint.

The Advantages of Raw Meat in the Treatment of Tuberculosis.—

E. Duhourcau, in the *Zeitschrift für Tuberculose und Heilstatten*, 1901, Heft 3, speaks of the splendid results which have been reached by Josias, Roux, Richet, and Hericourt in the treatment of tuberculosis with muscle serum and raw meat. He has tried it in numerous cases—one his own son, a youth of 19 years. The patient had overstudied and lost his appetite. He was given daily the juice of 500 grammes of beef. The beef was first macerated for from two to three hours and then finely divided. The half of its weight of water was then added with a small quantity of salt. From time to time the mass was stirred, and later placed in a bag and then in a hand-

press. The beef commonly yielded from 280 to 300 grammes of juice, one-half of which was taken in the morning and the other in the afternoon. A relapse of the same patient later was treated by the same method, only about one-half the quantity of beef juice that was employed in the first instance being used.

OBSTETRICS, GYNECOLOGY, AND PEDIATRICS.

Bacteriology of Cystitis, Pyelitis, and Pyelonephritis in Women—Causes and Treatment.—

Thomas R. Brown (*Johns Hopkins Hospital Reports*, vol. x, Nos. 1 and 2) gives an exhaustive study of the causes of infection of the genito-urinary tract in women. He comes to the following conclusions:

1. The direct cause of the infection of the urinary tract in women is the invasion and multiplication of microorganisms.

2. The commonest cause of these infections is the bacillus coli communis, which a consideration of the cases of acute cystitis definitely proves can and does in a large number of cases set up a true infection without the aid of any other germ.

3. Marked variations are seen in the virulence of this microorganism and in its pyogenic properties.

4. Other microorganisms frequently found are the tubercle bacillus, various staphylococci, and the bacillus proteus vulgaris; while numerous varieties of microorganisms have been less frequently met with, as the bacillus pyocyaneus and typhoid bacillus.

5. The proportion of cases of infection due to the bacillus coli communis is greater in women than in men, probably due to the close proximity of the female urethra to the anus.

6. Besides the entrance of the microorganisms, other factors are in most cases essential to the development of a cystitis; the chief of these factors are anemia, malnutrition, trauma of and pressure upon the bladder, congestion of the bladder, and retention of urine.

7. In cystitis the chief mode of infection is by the urethra, but a descending ureteral infection from an infected kidney, pyogenic metastasis by means of the blood and lymph currents, and direct transmission of the microorganisms from the intestinal tract, or from some adjacent focus of infection, are possible.

8. In pyelitis and pyelonephritis the usual modes of infection are along the ureter from an infected bladder, and by means of the

blood and lymph currents; in the writer's cases these modes of infection were found about equally represented.

9. In the great majority of cases of cystitis, both acute and chronic, and in the majority of cases of pyelitis and pyelonephritis, the urine is acid.

10. In the cases in which the urine is ammoniacal, the infection can be produced without the aid of any of the accessory etiological factors mentioned above, the irritation of the ammoniacal urine apparently being sufficient to render the bladder susceptible to infection.

11. In the case of infections of the kidney due to a urea-decomposing microorganism, a stone is likely to be present if the case is at all chronic.

12. Certain conditions exist which present most of the symptoms of cystitis, but no infection; the most difficult to diagnose is probably urinary hyperacidity of neuropathic origin, the successful treatment of which depends upon the recognition both of its urinary features and its general basis.

13. Although the diagnosis of renal infections can be made with absolute certainty only by ureteral catheterization, a probable differentiation between renal and vesical infections can be made by a careful study of the urine alone.

14. Tuberculous infections of the urinary tract frequently occur with no other demonstrable tuberculous lesions elsewhere in the body. Probably a tuberculous gland would be found post mortem in most of these cases.

15. The colon bacillus seems to be the commonest cause of pyelitis, while the bacillus proteus vulgaris and members of the staphylococcus group are also found less frequently.

16. To thoroughly understand the cases of cystitis, pyelitis, and pyelonephritis, and make the proper diagnosis, to inaugurate and carry out a rational line of treatment and to give a correct prognosis, a careful chemical and bacteriological study of the urine is essential.

The author's bacteriologic studies lead to a number of suggestions regarding the treatment of cystitis.

The urine will probably be a poorer medium for the growth of bacteria, the lower the specific gravity and consequently the less the amount of albumin and urea present; for that reason water should be given in large amounts, preferably by the mouth, but if this is not feasible, by rectal enemata or by subcutaneous injection; this is of especial importance in acute infections and in all forms of pyelitis.

Besides lessening the ability of the microorganisms to rapidly reproduce themselves, this is of advantage in flushing the kidneys and bladder, and getting rid, as far as possible, of collections of purulent matter.

It is of advantage to administer substances which, in a certain degree, render the urine antiseptic, although of course this must affect the microorganisms lying in the deeper tissues of the kidney and bladder to a much less extent than those on the surface of the pelvis of the kidney or vesical mucous membrane; such substances as urotropin, cystogen, salol, etc., in his hands have great value in the acute infections, but are of less value in chronic cases.

In cases associated with an alkaline urine it is well to administer substances by the mouth tending to render the urine acid, as boracic, benzoic, and camphoric acids; while in those cases where the urine is acid alkalies should be given to render the urine alkaline, as bicarbonate of soda or citrate of potash. The urea-decomposing microorganisms have their growth hindered by the presence of an excess of acid, while on the other hand the microorganisms which retain the acidity of the urine or render it more acid have their growth inhibited by an alkaline urine. The same condition of inhibition of growth would probably be produced in any case by a great excess of either acid or alkali in the urine, the bactericidal properties of the former of which have recently been shown by Rostoski.

In urinary hyperacidity without infection, but with symptoms suggestive of cystitis, the hyperacidity should be corrected by the administration of alkalies and the neurasthenic manifestations treated in the proper way.

It is essential that the resistance of the patient be increased by a careful attention to the general condition, the correction of disorders of nutrition or digestion, or of any diminution in the constituents of the blood, and the careful regulation of the personal hygiene.

In many cases other measures besides the ones just mentioned have to be employed, such as topical treatment, irrigations, instillations (nitrate of silver has proven of most value), and operative treatment of various kinds. The above are but suggestions regarding the general medical treatment of cases of cystitis, pyelitis, and pyelonephritis, derived directly from the bacteriological study of the cases.

A Study of 555 Cases of Summer Diarrhea Among the Poor.—

C. G. Kerley (*Archives of Pediatrics*, August, 1901) reports the results of a study of the intestinal disturbances in children among

the out-patients of a large dispensary. The infants varied from three to twenty-four months old. Of babies up to six months of age 14.6 per cent were breast-fed, and of those in the second six months 10 per cent were breast-fed. The most of these he thinks were given milk soup and tea. Only twenty were fed with proprietary foods, fifty-nine on condensed milk, one on goat's milk, and 472 on cow's milk in whole or in part. The cases varied in severity from a simple dyspeptic diarrhea with eight or ten stools to those with high fever and great prostration. The mortality was two per cent for 499 cases that were treated to a conclusion. Every case of summer diarrhea is to be looked upon as dangerous; a dyspeptic diarrhea under milk feeding will soon become a virulent infection. In every case milk is discontinued until the stools become normal; this may mean a withdrawal of milk for forty-eight hours to many weeks. In fifty-seven cases there was a relapse on resuming a milk diet. Barley water was found to be the best substitute, prepared by adding two tablespoonfuls of baked barley flour to a pint of water. A variation in the diet was obtained by substituting rice water, or a mixture of barley water and broth made from beef, chicken, or mutton. Alcohol should never be given. White of egg mixture he has used quite extensively, but has discarded it, as it often fails of digestion. Cold water spongings are to be given for the fever, and the child is to be kept in the largest and coolest apartment available.

The writer has tried many drugs, but only finds four of service. These are calomel, castor oil, bismuth, and opium. Calomel is preferred in cases with vomiting, and where the case is not urgent. Castor oil is used in the septic cases with infrequent stools. Bismuth subnitrate was given in 432 cases, never less than ten grains at a time, at one- or two-hour intervals while the child was awake. When given persistently in large amounts this remedy is of great value. To be of benefit it should blacken the stools; if it passes through the bowels unchanged it exerts no influence on the disease. Unchanged bismuth means an absence of sulphuretted hydrogen. In such cases one grain of precipitated sulphur is given with the bismuth. In 200 cases opium was given in connection with the bismuth. Four or five stools each day are normal, and we must remember that free drainage of the bowels is necessary.

Irrigation has been overdone. It is of little value in cases with frequent watery stools. It is of great benefit in cases with green stools, with or without blood. Under no circumstances should more than three flushings a day be given. Normal salt solution is best

for irrigation. In cases of high fever it may be used cold, and in cases of prostration it should have a temperature of 110°.

The chief means of preventing infant mortality is the instruction of mothers in correct infant feeding and the recognition of early intestinal disturbance. In addition the out-service of dispensaries must be improved, and in connection with them milk and ice stations established.

The Chorea of Pregnancy.—

Amand Routh (*Clinical Journal*, July 13, 1901) discusses in a clinical lecture the characteristics of the chorea of pregnancy. The symptoms in this special variety of chorea do not differ from those of the ordinary type. It usually comes on within the first two or three months and is most common in primiparæ. Those who have had chorea in childhood do not seem specially disposed to its development in pregnancy, for in from 60 to 70 per cent no such antecedent history is given. The opinion is expressed that the chorea of pregnancy is due to a toxemia, but it is not rheumatic. However bad the case of chorea in pregnancy, abortion almost invariably terminates the disease. The chorea of pregnancy is sometimes related to a nervous shock. The occurrence of this symptom during one pregnancy predisposes to it during the following ones, though the later attacks are usually milder. Mental symptoms not infrequently accompany or follow the chorea. If the disease is severe, it causes loss of sleep and great impairment of the general health. The movements make it difficult to take food, or even to feed such patients; consequently there is a deterioration in the general health. If the disease is at all severe, it is likely to be followed by an abortion and the extrusion of a dead fetus. Drugs are of no use in the treatment of this condition. In mild attacks the patient can be gotten to sleep by means of chloral or conium, but this is only a temporary measure, and the patients waken as bad as ever. Hyoscyamine in one-fiftieth grain doses, hypodermically, is one of the most valuable sedatives. In one of the writer's cases the extreme movements were only relieved by deep chloroform anesthesia. Sometimes the chorea is relieved by dilatation of the cervix. In one case of chorea seen in consultation, pregnancy had not been suspected. Upon examination the os was found to be dilated and the fetus dead. It was removed. In spite of the most careful antiseptic treatment and douching the temperature rose rapidly to 104.5°, the febrile action continuing for fourteen days. During the six weeks following the abortion the patient was dull and stupid, presenting an insanity of the comatose type.

Rupture of the Symphysis.—

Wilhelm Ruth, in the *St. Petersburger Medicinische Wochenschrift* of June 29, 1901, gives the history of a woman 30 years of age, strong and large, and in vigorous health. In the second half of pregnancy she complained of pain in the symphysis, and later she limped and locomotion became difficult. After labor there were no complications, with the exception of the difficulty in walking. This gradually disappeared. In her second pregnancy the same symptoms appeared; at the end of pregnancy a marked separation in the symphysis was noticeable, the diastasis amounting to one centimeter. The latter part of the pregnancy was passed in bed and labor was rapid. At the end of two weeks the symphysis had again united, and the patient was able to walk without difficulty.

The remarkable feature in the above case is that two pregnancies were followed by identically the same condition of the symphysis. It confirms the statement of Hippocrates that late in pregnancy there is more or less mobility in the joints of the pelvis.

A second case was that of a woman 32 years old, who had been married three years. The previous history of the patient was free from joint disease, and during pregnancy there was no disturbance in the general health. Locomotion was not hindered. Three days before labor she had been employed in a factory. The labor, however, while it was accompanied by severe pain, did not progress; a high forceps operation was performed, and with difficulty the head was delivered. As the head advanced into the small pelvis a distinct cracking sound was heard. The operation was followed by fever. At this time an examination of the symphysis showed a separation of about the width of two fingers. One month after the labor the patient died. At the post-mortem examination a space between the ruptured pubis was found to contain pus. The cause of the rupture in this case was the extreme force used in the application of the forceps.

Treatment of Infantile Diarrhea.—

W. H. Robey, in the *Philadelphia Medical Journal* of July 27, 1901, gives his experience in the treatment of 172 cases of diarrhea seen in the children's room of the Boston Dispensary; 160 of these were diagnosed as fermental, eight as mechanical, and four as ileocolitis. Only twelve of the children were breast-fed. In the cases of mechanical diarrhea there was a history of fruit seeds or skins having been ingested, or they were washed out in an enema. In the ileocolitis cases, there was blood in the stools with some bits of

membrane. The temperature in the cases was not uniformly high, and was found so variable that it was no guide to the condition of the patient.

In dispensary practice the writer gives the preference to calomel for the purpose of clearing the intestinal tract, because something is accomplished at once. An ideal cathartic is castor oil, but it may be vomited, and if so valuable time is lost. Each case of diarrhea before leaving the dispensary had the bowel washed out with a tepid normal salt solution. The character of the contents of the intestine brought away by the enema was always noted. In an out-patient service it is not practical to wash the bowel but once a day. The washings allayed the nervous irritability and lessened the fever. In all cases food was withheld for twenty-four hours, with the exception of some albumin water, which was made by adding the whites of two eggs to a pint of boiled water, together with a pinch of salt and a teaspoonful of brandy. In breast-fed babies, all that was required was to stop feeding for twenty-four hours, after which a little calomel and bismuth was given. If bismuth was administered without the initial purge, it was found not to be satisfactory. Opium was used only where pain was a marked symptom.

Ovarian Organotherapy.—

William Krusen (*Bulletin of the Johns Hopkins Hospital*, July, 1901) has employed ovarian extract for three years in cases of amenorrhea and those having symptoms following removal of the uterine appendages, and for disturbances associated with the natural menopause. His experience leads him to say that ovarian extract is harmless, as no untoward effects have been noted following its administration, beyond a slight nausea when full doses have been given. In the treatment of amenorrhea and dysmenorrhea no good results were secured. The best results were obtained in the relief of symptoms due to the artificial menopause; in a few instances the congestive and nervous symptoms were ameliorated. No appreciable result was noted in the use of ovarin in the natural menopause. No confidence can be placed in the drug, as it often proves valueless in cases where it is positively indicated. It is possible that in the cases in which relief was noted the effect was due to mental suggestion, rather than to the action of the drug. He believes that the theory which suggests the use of this extract is faulty, and its administration is based upon a wrong assumption of the function of the ovary. In organotherapy the best results have been obtained from the use of the thyroid and adrenal glands, and the ovary has

no corresponding function. Ovulation is the function of the ovary, and if any peculiar product is incidentally manufactured, its isolation has not yet been accomplished.

Bipolar Version with Slow Extraction in the Treatment of Placenta Previa.—

Henry B. Fry, in the *Annals of Gynecology and Pediatry* for August, 1901, says that little was added to the method of treating placenta previa over that of podalic version until the bipolar method was devised by Braxton-Hicks in 1861. The mortality from the older method was from 25 to 50 per cent for mothers, and from 50 to 80 per cent for infants.

The advantage of bipolar version is that it may be performed with little dilatation and consequently less hemorrhage. Seventeen years have elapsed since the method was demonstrated to have been a great improvement on former procedures, but it is still far from popular. The writer reports fourteen cases, in the majority of which the bipolar method of version with slow extraction was employed. All of the patients recovered. The danger to the child is somewhat greater, and consequently the infant mortality is increased. Of his fourteen cases bipolar version and slow extraction was employed nine times. All of the mothers recovered, and five of the fifteen infants were born alive. Of the children lost, two (twins) were not viable; one was at the seventh month, and four were dead when the case came under observation.

Tænia Saginata from Raw Scraped Beef.—

G. J. M. Miller (*Pediatrics*, Aug. 1, 1901) describes the case of a baby who from birth had suffered from indigestion. Under a modified milk diet the child improved, but later relapsed; it was then given a diet of raw scraped beef with peptonized milk and fruit juices. Under this diet the child rapidly gained in weight. Three and a half months later the patient was noted to be passing segments of a tapeworm. The oleoresin of male-fern was administered, and was followed by an expulsion of the worm.

The writer takes this opportunity to call attention to the dangers in administering raw beef to infants. The latter substance is often of great value in the feeding of infants, and it would be well to run the risk of tapeworm in some cases, but it should never be administered to children in health. Some of the standard writers say that the danger of tapeworm is so slight that it may be practically disregarded, but a study of the literature shows that it is by no means

uncommon, and it seems therefore wise to reserve the use of raw beef for extreme cases of indigestion in which the proteids of cow's milk cannot be taken. Beef juice is not attended with so much danger, particularly if a beef press is employed and the juice is strained through fine linen.

Adhesive Plaster Strapping in Umbilical Hernia of Infants.—

J. C. Hubbard, in the *Boston Medical and Surgical Journal* of July 25, 1901, reports sixty-six cases of hernia at or near the umbilicus in children who have been treated by strapping with adhesive plaster, occasionally a pad being applied over the hernia. Twenty-eight cases are specifically stated in the records to have been cured, the duration of the treatment lasting from three to forty-seven weeks. Comparing the length of treatment with the age of the infant shows that the younger treatment was begun the more rapidly the cure resulted, the size of the ring appearing to play a minor part. The character of the ring was of greater importance than its size. A ring with a sharp, distinct outline was closed more slowly than one which was indefinite and flabby. The size of the hernia varied from a small pea to an apple, but only in exceptional cases did it seem to have any bearing on the prognosis. At the time of making the report a large number of cases were still under treatment, but none of them a sufficient time to pronounce definitely as to their prospects. It is thought that a cure may be safely predicted in sixty of the sixty-six cases. There were three cases of recurrence.

Multiple Sclerosis in a Child of Five Years.—

The rarity of this disease in children gives considerable interest to a case reported by Phillip F. Barbour, in *Pediatrics* of July 15, 1901. The patient was a negro girl aged five years. She had had tremor for a couple of years; it was present when the child rested, but was greatly exaggerated by voluntary movements. When she started to walk she would stand for a moment to get her balance, and would then walk like one affected with spastic paralysis. There was emaciation, the legs and arms were wasted, and there was some contraction in the lower extremities. The knee-jerks were marked, but ankle clonus could not be obtained. Sensation was normal. Romberg's symptom was absent, though at times there was difficulty in maintaining the equilibrium. At times there was strabismus. There were occasional attacks of vomiting, which seemed to bear no relation to the food taken. Speech was indistinct, and mentally the

child was below normal. Until the child was three years of age she developed normally, when there was an illness lasting three weeks, which was followed by the palsy accompanied by the tremor. There was no family history of a similar trouble.

FORENSIC MEDICINE.

A Case of Epileptic Homicide.—

R. P. Smith, in the *Journal of Mental Science* for July, 1901, gives a lengthy account of an examination of a man who was charged with the murder of his wife and child, and acquitted on the ground of insanity. The patient's family history was very defective, including a number of relatives who were epileptic. In the trial of the case the previous good character of the patient, his prolonged service in the army and close attention to duty, were clearly proven. There was no motive for the crime, and the patient stated that he had no knowledge of it until after he was informed of the occurrence at the police station.

The chief interest in the case lies in the statements of the medical witnesses, to the effect that they believed that the patient was unconscious during the commission of the act. His only knowledge of the crime was that which was derived from the statement in his presence of a warder, after he had been arrested, that he had killed his wife and child. The careful analysis of the testimony shows the lines upon which a case of this kind should be investigated. The diagnosis of epileptic homicidal impulse was fully sustained.

It is understood that all original communications sent to this journal are for its pages exclusively, excepting in cases where articles are published in the transactions of the Societies before which they are read, or in which an abstract appears. Articles will be illustrated. Authors will be furnished a liberal number of reprints; or, if they so elect, an honorarium will be paid for original communications.

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ORIGINAL ARTICLES.

THE STEREOGNOSTIC SENSE.

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The stereognostic sense is that faculty by which we determine the size and character of objects held in the hand. As it is sometimes lost in disease, as for instance in late tabes, it should be sought for and tested in every case of suspected sensory disturbance. This is not hard to do. With his eyes closed, the patient is asked to describe various small objects placed one after another in his hands. Any small object will do, such as a silver coin, a key, a pencil, or a small book. Variously shaped blocks of different weights, made of soft and hard materials and measuring from three to six centimeters in diameter, will be found especially convenient. When astereognosis is present it will manifest itself clearly enough. The patient will not be able to give any intelligent idea of the shape and character of the object, though he may distinctly feel it. It will be found to be accompanied generally by a disturbance of one or more of the common forms of sensation. Just what form of common sensation is involved in astereognosis is the difficult part of the whole matter to decide.

Most authors, like Dana, declare that the stereognostic sense depends upon the use of the tactile and muscular senses. Simple cutaneous sense would seem to be an absolute prerequisite for the appreciation of any sort of an object; but if, as we will see later on, the knowledge of the shape of an object is acquired through the space sense, which in turn is largely if not entirely dependent upon

muscular movement, it may be that the stereognostic sense is not so absolutely dependent upon the preservation of cutaneous sense. It will depend upon how much muscular movement is appreciated, if at all, through the cutaneous sense.

Other writers think that while the stereognostic sense is dependent upon certain afferent impulses for its initiative, it is essentially a psychic phenomenon not to be localized in any one sensory tract or area. See how extremely desirable therefore it is to settle, if possible, just what sort of afferent impulses enter into the exercise of the stereognostic sense and where in the cortex the psychic part of the phenomenon takes place; for in this way the absence of it only can prove of any value as a localizing sign.

It must be admitted that stereognosis is an exceedingly complicated perceptive phenomenon, possibly involving, as Sailer suggests, "an intricate correlation of tactile, position, pressure, localization, and temperature perceptions." Hoffmann taught that astereognosis may occur in spite of the preservation of the temperature, contact, pain, localization, and muscular senses. As Oppenheim says, it seems to depend more particularly upon the loss of the sense of pressure, passive movement, and location. Space and pressure sense are therefore the important elements, involving of course, according to most authors, the sense of movement, and of cutaneous touch. From Hoffmann's writings the idea has grown that astereognosis is mostly due to the loss of the muscular sense.

Sailer says at the end of quite an exhaustive study of the question that "in case of some disturbance in or between the center in the parietal lobe and the terminations of the sensory nerves in the skin, stereognosis is lost if tactile sense is lost, and it is greatly impaired or lost if localization sense is lost; it is usually, but not always, disturbed if the muscular sense is lost, but may persist if any of the other forms of cutaneous sensation are lost or disturbed." He further adds that the impulses involved in the stereognostic sense are probably received in the parietal lobe and then are recognized in consciousness by some higher center or group of centers, a disturbance of which centers will produce astereognosis.

Dercum examined the stereognostic sense in 114 miscellaneous cases of nervous disease and came to the conclusion that the loss or impairment of the spacing sense is the most important factor in determining astereognosis, though it is to be remembered that astereognosis may exist in spite of the preservation of the spacing sense. He says that next in importance is the loss of the knowledge of the position of the fingers, with ataxia of movement; and that the

preservation of the ability to perceive tactile impressions and the preservation of the pressure, temperature, and pain senses are insufficient to prevent stereognostic loss.

Burr attempts to be more explicit. Among the conclusions drawn by him, after a study of stereoagnosis (he prefers this word to astereognosis) and allied conditions, is this one: "There is a distinct area of the cortex in which sensations produced by handling objects are grouped together to form tactile memory images." This tactile perceptive area is in the parietal lobe. "It is not the same thing as the sensory area, though it may be located within the boundaries of the latter." The relative importance of the form of afferent impulses that enter into the stereognostic sense is dependent upon the nature of the object to be perceived. "The space sense, the localizing sense, and the sense of position are probably the most important." Hence "it would be well to limit the term stereoagnosis to cases in which the inability to recognize objects by contact is due to some failure of sensation caused by brain disease either in the cortical sensory area itself or in the fibers going to it."

Other authorities who have studied this question, notably Wernicke, Olmsted, Dubbers, von Monakow, Williamson, Vorster, Dejerine, and Egger, agree more or less in assigning an important rôle in the make-up of the stereognostic sense to the so-called muscular sense. Perhaps a word here in regard to this much discussed muscular sense will not be out of place.

It was in 1833 that Charles Bell originated the term "muscular sense," after observing a nurse with paralysis and anesthesia on opposite sides of the body. The cutaneous sense was lost in this case, but it was clear to Bell that the nurse dropped the child because of the impairment of the sense of muscular activity, which is not the same as a loss of a deep sense merely in the muscles themselves. He attributed the phenomenon to a kind of sense within the muscular tissues when they were in a state of activity. Gerdy, in 1837, acknowledged that the activity of the muscles gave rise to a sensation, and he attributed the sensation to the organic activity of the contraction, *d'activité organique de la contraction*, rather than to any interarticular or cutaneous sensory elements. In the same year the muscular sense was given the principal rôle in the perception of the form of objects and was called the stereognostic sense (Puchelt). Landry reported cases in 1852 in which the cutaneous and muscular senses were distinctly separable. He criticized J. Muller for taking the view that the power of appreciating form,

weight, and location was solely a cerebral function and in no sense peripheral. He argued that it was not entirely tegumentary, as Haller thought, because it resides within the muscle itself and is "a primitive and special sensation of muscular activity." He even thought that we could distinguish active from passive muscular movements, their extent, their energy, and their direction, and in this way determine the position of the limbs, resistance, the fluidity, solidity, form, and volume of objects. Bazire, von Strumpell, Duchenne, Briquet, and others adopted the same view. It was accepted that the superficial sense was tegumentary, the deep sense muscular.

Claude-Bernard skinned a frog and thus suppressed tactile sense. Nevertheless, all the muscular movements were regularly coordinated, though ultimately this ceased when the posterior spinal roots were severed. This experiment led Claude-Bernard to conclude that there were muscular nerves separate and independent of tactile nerves. The muscular nerves were put in the anterior spinal roots by Arnold, Brown-Sequard, and Lewes. Cherchewsky declared on the other hand that Bernard's experiment could just as well have been used to prove the rôle of the articular tactile sense in the maintenance of coordination.

In 1874 Sachs described these muscular sense nerves, while Golgi localized the nerve terminals at the point where the muscular tissue and tendons join. The abundant existence of Pacinian tactile corpuscles in the articular regions and even in the articulations was demonstrated by Rauber. Section of the nerves going to them gave rise to uncertainty of gait, incoordination, and abnormal movements. Lewinski attributed all the sensations of movement to the articulation of the joints and explained that it was due to the sliding of the opposed surfaces against each other, the sensation in the surfaces themselves being purely tactile.

Richet, Ribot, Brissaud, Aba, and Claparede continued to recognize a special muscular sense. Schiff, in 1858, attributed the notion of movement and of motor activity to the cutaneous sensibility. He thought it was directly dependent upon the folding, the pressure, and the tension of the contracting muscle against the overlying skin. Vulpian's idea corresponded with Schiff's.

Trousseau, Bastian, and Goldscheider showed and taught that the muscular sense depended upon a multiplicity of indistinct sensations localized in the body segments, the articulations, the muscles, and the skin, the skin being the most prominent. Delabarre and Claparede adopted this view. Goldscheider, followed by Oppenheim,

recommended that the term muscular sense be dropped altogether, for it includes the sensations of passive movement, of active movement, of heaviness and resistance, and of position. As Maudsley pointed out, we are conscious of the position of a limb in passive movement, which fact would seem to argue that the knowledge of its location is not due entirely to the muscles. In reply, however, it is to be remembered, as Walton and Paul state, that even when at rest or in passive motion the muscles of the limb are in a constant state of tonus. Sherrington and Batten have lately hinted that the neuromuscular spindles which are found so often degenerated in locomotor ataxia may perform the office of the muscular sense. It would seem, however, that the sense of position is something more complex than would be represented in the function of a single organ or set of organs like the neuromuscular spindles.

The psychic school, so-called, attributed the sense of muscular activity more to the notion of a central perception of the effort put forth at the periphery. To this school belonged especially Weber, W. Hamilton, J. Muller, Bain, Hughlings-Jackson, and Helmholtz. According to these authors, there is a conscious perception of the muscular conditions in general, and of course any change in those conditions will be at once recognized in the sphere of consciousness as movement. When there is cutaneous insensibility without a loss of the muscular feeling, the perception of movement is always considerably disturbed. Therefore tactile with muscular sense aids in giving us the perception of location. The latter is a complex product and includes at least sensations of touch and muscular feelings.

Wundt, in 1893, attributed the muscular sense not to the exercise of the muscles, but to the "cellular function of the motor zones" in the cortex. He emphasized the thought that consciousness of effort is quite independent of muscular contraction, as is shown for instance in cases of paralysis and after amputations.

As the result of a careful review of the whole matter Bonnier, to whom I am indebted largely for this account of the various views of the muscular sense, declares that there is no special muscular sense. "We perceive," he says, "our volition at the point in our cortex where it originates, we perceive the effects associated with it at the part of our segments where these effects are produced." There are two kinds of sensation perceived. One is a sensation of attitude or variation of attitude; the other is a sensation of segmental or peripheral activity, a sensation of innervation. This segmental sensation is only an internal tactile sense (articular,

aponeurotic, ligamentous, muscular), and is an adaptation and transformation merely of the external tactile sense. All sensation is primarily tactile, for in the evolution of the animal all later variations are but variations of the primitive irritability of protoplasm.

Our knowledge of the position of the limbs is in all probability the result of a cortical association and interpretation of a number of afferent impulses sent in from the muscles, the articulations, and the skin, in all of which are found sensory end organs, these organs being essentially tactile. The prominence of one or the other set of afferent impulses in the production of the stereognostic sense is made to depend upon whether the parts are in active movement or at rest. The necessity for active movement or rest in the perception of the object will depend largely upon the nature of the object to be perceived. To determine the nature of most objects, the space and pressure sense will have to be employed, and this will involve the sensation of variation of attitude, or in other words the sensation of movement. In such a case the deep tactile organs concerned in the so-called muscular sense will come into play. Solid, semisolid, light and heavy, square and round objects will all be perceived through more or less movement in the hand and its parts. On the other hand, the limb may remain at rest and yet be able to give us knowledge of a stream of water flowing over it, or of the movements of a feather, so that we can tell the nature of these objects. In the latter case the cutaneous tactile organs are obviously employed. Whatever the sensation is, then, whether of movement in the extremity or of movement in the object, it is primarily a sensation of touch, a sensation of attitude or variation of attitude. The origin of this sensation, whether in skin, muscle, tendon, articulation, aponeurosis, or ligament, is a matter of minor importance.

When there is a loss of this primitive tactile sense (cutaneous when the limb is at rest, muscular when it is in motion) the habitual, familiar association of the two sets of inpouring impulses, upon which association the memory, ratiocination, and imagination in regard to them necessarily depend, is disturbed and the nature of the object remains uncomprehended. Astereognosis, therefore, can hardly be considered a very definite localizing symptom. Its presence would indicate merely a break in the peripheral tactile paths or in the central associative areas where the numerous inpouring impulses are brought into comparison with one another. Astereognosis will indicate merely a false perception (psychosis) resulting from an alteration in the central perceptive apparatus

(including some part of the parietal lobe), or in the paths that connect this central apparatus with the peripheral organs of touch (neurosis) found in the skin, muscles, tendons, ligaments, etc. While in itself, therefore, it does not promise much as a very definite localizing symptom, in conjunction with other symptoms it may prove to be of the greatest value.

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100 STATE STREET.

PSYCHOLOGY OF NEURASTHENIA.[1]

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Neurasthenic psychology varies with the period of attack and the nosologic state when attacked. Psychology in the normal adult attacked by neurasthenia deals essentially with disturbances of the coordination constituting the "ego." The "ego" oscillates between perfect unity, absolute incoordination, and the intermediate degrees, without line of demarcation between normal and abnormal, health and disease, the one trenching upon the other, or else it ceases to be. The "ego" is the cohesion for a given time of clear states of consciousness, accompanied by others less clear and by physiologic states which, though not entering into consciousness, are even more effective than the conscious states.[2]

Certain cortical areas exclusively connected with associating tracts have little if any direct connection with the bodily periphery. Such cortical areas and subsidiary associating tracts, bound into the higher unity of the cerebral hemispheres, constitute the material substratum of the "egò." Disturbance of the intricate relations involved in this is necessarily accompanied by disturbance of the "ego," or may render an "ego" impossible. On accurate connection of projection areas (passing outward to the periphery) with projection areas, and of these with "abstraction" areas, the faculty of logical corelation depends. Correction of the countless errors made during a lifetime is possible only by inhibitions, exercised by the association fasciculi. Correction with approaching maturity is delegated to the "abstraction" field, whose functions are ordinarily performed in an automatic manner.[3]

Fatigue and other constitutional disturbances break up the associations constituting automatism. The individual then becomes actively conscious of the necessity of controlling conceptions constantly received from sense impressions. The factor assumed to secure balance between associations is termed will or volition. This final act of consciousness results from a complex coordination of states, conscious, subconscions, or unconscious (purely physiologic), finding expression in action or in inhibition. Volition is an effect, not a cause.

[1] Read in outline before the Chicago Medical Society.

[2] Ribot's Works, Humboldt ed.

[3] Spitzka: *Journal of Nervous and Mental Disease*, 1877.

Into the subconscious and unconscious factors enter the condition of various organs and the results of training. These last, at first conscious, as in the child's learning to walk, speak, be modest or cleanly, are finally transferred to the subconscious spheres and become automatic. The higher the mental state the greater the transference.

The conscious mental process[1] indicates an imperfection of the cerebral organization and the presence of an unusual activity which deranges the equilibrium, the innate or previously acquired automatism, and does not find a well formed mechanism ready to discharge it. It is the transitory phase between an inferior and a superior cerebral organization, expressing novelty, incertitude, hesitation, growing astonishment, imperfect association and incomplete organization, slowness and inexactness in transmission, loss of tenure in the phenomena of reaction. The nervous paths are not distinctly enough traced to permit, without destruction in the final effect, reflex movements or reflex ideational sensations. The degree of the conscious mental process determines the amount of attention. Attention is hence comparatively slight in the ape, hereditarily defective child, and philistine, since the power of new ideas to create states of uncertainty depends on the presence or absence of preformed paths. The balance of the "ego" is disturbed when strains unduly obtrude the unconscious or subconscious upon consciousness.

When the balance of the "ego" is disturbed, primitive instincts rising prominently to the surface take unexpected directions. Excessive spirituality, as Spurgeon years ago pointed out in one of his sermons, is by a strange yet natural law next door to sensuality. Closely connected with salacity is religious excitement, as also is ecstasy.[2] The passion of the religious ecstatic lacks nothing of what makes up sexual love, not even jealousy.[3] The religious and sexual emotional states at the height of their development exhibit a harmony in quantity and quality, and can under certain circumstances act vicariously. This vicarious action has received the name of religiosity.

Under certain circumstances love of pain to self or others is an expression of this vicaration. Algophily (love of pain) of the passive type often finds expression in religious flagellation. Flagellation appeared in epidemic form during the fourteenth and fifteenth

[1] Herzen: *Journal of Mental Science*, 1887.
[2] Ellis: Psychology of Sex, vol. ii.
[3] Krafft-Ebing: Psychopathia Sexualis.

centuries, but the sexual element became in these so demonstrably obvious that the church, at first favorable, took severe measures against the epidemic. Another phase of algophily more encountered by physicians is the desire for useless surgical procedures, whether performed by male or female physicians. The gynecologist, as G. Frank Lydston[1] remarks, is compelled to be on his guard against an algophily, little suspected by those surrounding the patient, in which she develops a fondness for gynecologic manipulation. The most frequent expression of this is seeming dysuria. Frequent gynecologic manipulation having exhausted sexual response, surgical manipulations alone are able to secure an orgasm! The bladder is, however, the most delicate esthesiometer in the body. Contraction of the bladder follows on the slightest stimulation of a sensory nerve.[2] All conditions of the organism which raise blood-pressure and excite the respiratory centers produce an immediate measurable effect upon the bladder. When Mosso brought a plethysmograph in contact with a female bladder, even a slight touch on the back of the subject's hand produced a notable contraction of the bladder. Whenever the subject was spoken to or made the slightest mental exertion there was a similar contraction. These contractions, much more delicate than those of the blood-vessels, cannot be paralleled by any other part. Born claims the bladder is the mirror of the soul; but it would be equally correct to say that to some extent the soul is the mirror of the bladder. The fainter vesical contractions cannot be said to play a recognizable part in emotion, but when they attain a somewhat higher degree of intensity they play a well recognized part. "A nervous bladder," as Goodell puts it, "is one of the earliest symptoms of a nervous brain." Contraction of the bladder plays a part in the constitution of various emotional states of fear, anxiety, and suspense. Its extreme spasmodic form (urinary incontinence) is very common in children and by no means uncommon in young women (quite apart from pregnancy or the results of pregnancy), though rare in men. This affectability of the bladder interferes to some extent with the employment of women in factories and offices.[3] It underlies the tendency to frequent micturition which occurs in girls employed as stenographers, typewriters, clerks, etc.

Erethismic conditions resultant on such disturbance of the "ego" may produce paradoxic sexual instinct in which sexual frigidity is combined with intense sexual preoccupation. This may become a

[1] Essays.
[2] Havelock Ellis: Man and Woman.
[3] *Ibid.*

sexual inversion in which the patient is drawn temporarily toward friends of the same sex, without consciousness of the sexual origin of the affection for them.

The action of the heart, lungs, or other organs registered in the unconscious phases of the "ego" does not normally form a conscious basis of mental states. Their disturbed action, destroying inhibitions, relegating them to the unconscious, raises them into the subconscious sufficiently to disturb the "ego," thereby creating states of anxiety, doubt, introspection, and their emotional consequences.

These occur at first during sleep at the time of the lowest systemic vitality, producing the distressing dreams which so often precede the phobias and obsessions of neurasthenia. The dream impression is sometimes so vivid that a hypnogogic hallucinatory process remains in consciousness, often forming later a vague delusional or false memory.

Through the rhythmic law of the nervous system, circular neurasthenia,[1] with its alternation of emotional depression and exaltation, often appears without external cause. Suppression of the exaltation phase produces hypomelancholia; of the depression, hypomania.

Disturbances of the automatic inhibitions permit the trivial, the immodest, the occult, and the criminal to rise into consciousness, whence the obsessions and phobias of neurasthenia. Of these there are two classes: the besetting and the impulsive. The first appears in conditions like the prying tendency into the trivial, or "grübelsucht" of the Germans; the last in homicidal, suicidal, nymphomaniac, kleptomaniac, pyromaniac, and allied impulses.

From introspection and subconsciousness of organic disturbance comes the nosophobia of the neurasthenic. Nosophobia is too often brutally regarded as feigned hypochondriasis without reference to its underlying factor. Nosophobia differs from hypochondriasis in being a fear of a disease rather than a belief in its existence; it is hence more terrifying than hypochondriasis.

Nosophobia takes a special direction according as the quack consulted has an alcoholophobiac, pseudoreligious, toxicophobiac, psoric, "sexual purity," testicular, uterine, "canalopath," myopath, osteopath, cylinder, catarrh, kidney, vermicular, or reflex bias. The neurasthenic is peculiarly liable to suggestion, whence the crowds which were "cured" by Valentine Greatrakes (in the seventeenth century), as they are "cured" by Mother Eddy now.

[1] Obbo: *Centralblatt f. Nervenheilkunde*, 1892.

Introspection through its numerous morbid resultants rising into consciousness inhibits symbolization, whence neurasthenic logorrhea. This is a word-diarrhea with decided constipation of ideas. Logorrhea is not necessarily abnormal since it often appears during medical discussions. Neurasthenic logorrhea often takes the direction of nagging.

Transitions from the obsession to the delusion, while not frequent, may occur when, by destruction of normal associations, the obsession no longer seems abnormal. Generally when mental breakdown is as complete as this it culminates in acute confusional insanity, the "verwirrheit" of the Germans. Exceptionally typhomania or Bell's disease is produced. Sometimes a prolonged stuporous type results. True stupor may occur from extreme interaction of inhibitions. Neurasthenia in childhood produces casual visual and other hallucinations more frequently than neurasthenia of the adult, because of inability to distinguish between the subjective suggestion and the objective fact.

Neurasthenia between the age of six and twelve, when the first signs of maturity (the permanent teeth) appear, often precipitates the onset of the mental state of puberty and adolescence. In this, religiosity, undue conscientiousness, undue sexual consciousness, introspection, and nosophobia normally tend to appear.

During puberty and adolescence there is normally a struggle for existence between the cerebral and the reproductive system which tends to obtrude subconscious states upon consciousness.

From this struggle results a fear of the unknown which produces suspicional tendencies and pessimism. Suspicional tendencies and pessimism, with which they are so often associated, arise from states of anxiety resultant on instability of association, dependent on lack or non-use of association fibers. Pessimism, as Magalhaes[1] has shown, is a state of nervous instability with alternations of irritability and prostration. The subject is supersensitive, impressions called forth are intense, and, causing prolonged reactions, are followed by exhaustion. The state is characterized by a general hyperesthesia, which naturally results in an excess of suffering. From instability and hyperesthesia result discord between feelings themselves, between the feelings and the intelligence, between the feelings, the ideas, and volitions. Discord between the feelings shows itself in a great variety of paradoxes, contradictions, and inconsistencies. To the pessimist, possession of a desired object does not atone for former ivation. Pain or unsatisfied desire is replaced by the pain of *ennui.* ith inability to enjoy what he has are coupled extravagant expec-

[1] *American Psychological Journal*, 1893.

tations regarding that which he does not have. He is extremely susceptible both to kindness and contempt. He passes suddenly from irritability to languor, from self-confidence and vanity to extreme self-abasement. This intense sensitiveness results in intellectual instability, since it involves a great vivacity of the intuitive imagination, which favors the setting up of extravagant ideals lacking in solid representative elements. Hence a gap opens between his ideal and the actual. He can never realize the ideal he pursues, and so his feelings are of a somber hue. From this excessive realism results a state of doubt, a certain distrust of all rational objective knowledge, expressed in occult fears and belief. It assumes another form in extreme subjectivism. The pessimist is haunted by images of the tiniest religious scruples, suspicions, fears and anxieties resultant in alienation from friends, seclusion, misanthropy. He has an incapacity for prolonged attention, a refractory attention, and a feeble will. These result in inaction, quietism, reverie, self-abnegation, abolition of the personality, annihilation of the will, amounting sometimes even to poetic or religious ecstasy. Pessimism is frequently associated with a morbid fear of death (thanatophobia).

Neurasthenia tinges the mental state of puberty and adolescence with undue egotism, whence the unpleasant obtrusiveness of what is called sexual neurasthenia. This is generally the morbid survival of the adolescent mental state after adolescence. Hebephrenia may result, with its intense vanity, extreme selfishness, religiosity and perverted ethics, aural and visual hallucinations, shallow emotionalism, and violent but controllable impulses.

Lust of the algophiliac type, which seeks satisfaction in pain (whether in cruelty toward others or in self-mutilation), often occurs prematurely between six and twelve or during adolescence. This may arise from congenital deficiency of power to acquire that secondary "ego," best expressed by the Golden Rule, or from that decay of the secondary "ego" which neurasthenia, like other protracted invalidisms, occasions.

Neurasthenia during periods of involution like the climacteric and senility is marked temporarily by the mental characters of the period, followed or not by permanent mental breakdown. Climacteric neurasthenia, whether the climacteric be expressed in man by prostatic change or in woman by the menopause, presents the psychic features of ordinary neurasthenia plus sexo-emotionality. This is likewise true of senile neurasthenia; the miserliness, collectivism, eroticism, etc., of old age may temporarily appear during it.

Neurasthenia in a degenerate (properly speaking, a hereditarily tainted defective) is accompanied by persistent obsessions of the besetting or the impulsive type. In such subjects circular neurasthenia may become periodic and circular insanity. Neurasthenia may precipitate paranoia in hereditarily tainted subjects of seemingly sound mentality. This was the case with a member of the medical profession who, for his contributions to dental science, had been made surgeon-dentist to Queen Victoria. During the Lady Flora Hastings controversy, when Queen Victoria charged that that victim of uterine cancer was pregnant, he chivalrously defended the accused, proving he was right by a necropsy. The Queen thereupon deprived him of his office. Through resultant intrigues of the court camarilla and its tradesmen sycophants, he lost his practice, fell into neurasthenia, and died a querulous paranoiac.

Neurasthenia resultant on or complicated by phthisis has the suspicional capriciousness of the tuberculous. The same type of mentality occurs with uncompensated cardiac disease.

Neurasthenia produced by alcoholism or accompanied by it has the morbid jealousy, fears of poisoning, and ideas about morbid sexual manipulation which characterize alcoholism.

Neurasthenics who have been exposed to syphilis, or believe they have been, have as the dominant note of their mentality syphilophobia.

Neurasthenia due to sunstroke, traumatism, lightning, or electricity, tends to develop suspicional mental states which very frequently form the basis of a secondary paranoia culminating in paretic dementia from extension of meningitic processes to the cortex. Exceptionally, similar states are produced by the protracted nervous adynamia resultant on typhus and allied fevers.

The mental state of most pregnant women is essentially that of mild neurasthenia of the circular type. The so-called "longings" are besetting and impulsive types of obsessions. Phobias usually take the type of fear of "marking" the fetus. Pregnancy introduces a new force into woman's organization which disturbs the physiologic balance previously existing, and hence, strictly speaking, so far as the woman is concerned, is a pathologic albeit not a nosologic state.

The psychology of neurasthenia may therefore be regarded as expressing the nature and extent of a disturbance of the normal "ego" due to the influence of nerve tire primarily on the central nervous system; secondarily, through resultant uncontrolled action and its consequences on the nerve systems of the organs.

CEREBRAL ANEURISM, WITH REPORT OF A CASE.

BY H. H. STONER, M.D., HIGHMORE, S. D.

The condition generally considered necessary for the development of aneurism of the systemic arteries, aside from traumatism, is a weakening of a limited portion of the arterial wall. This defect is the result of a local arteritis. The predisposing factors leading to this inflammatory process differ materially, in the case of the cerebral arteries and the arterial system of the other parts of the body. The latter are due to syphilis, gout, alcoholism, atheroma, thrombosis, and embolism. Cerebral aneurism is caused almost exclusively by thrombosis and embolism; of these two, embolism is by far the most frequent. Whether the primary lesion is the result of a local inflammatory process in the wall of the artery, due to a diseased condition of its inner coat or to the irritation of a thrombus or embolus, the pathological condition amounts to the same thing in the end. To whatever cause the inflamed arterial wall may be due, it results in a weakness of that portion involved, so that under the pressure to which it is subjected it gives way, permitting a bulging of the wall at the spot affected. This constitutes the initial pathological changes of all aneurisms. The character of the aneurism, whether it be sacculated or fusiform, depends upon the area of the arterial wall involved in the inflammatory process. If only one side of the wall be affected the dilatation takes place at this point, for here the resistance is less than at other portions, with resulting sacculated aneurism. If the inflammatory process is due to the plugging of a vessel by a thrombus or embolus, the pressure being equally distributed over the arterial wall, the inflammation extends over the area subjected to such pressure. In this event the walls of the artery give way around its whole circumference simultaneously, resulting in a fusiform aneurism. It does not necessarily follow that all aneurisms arising in consequence of the plugging of the lumen of an artery are of the fusiform variety, for the pressure of the plug may be unequally distributed and cause the aneurism to assume the sacculated form. I only contend that in the majority of cases arising from thrombus or embolus the character of the aneurism is fusiform.

Nearly all aneurisms occurring under the age of 40 years are caused by embolism. In the majority of such cases the patient has suffered at some previous time from endocarditis, the vegetations arising from which have been dislodged, constituting an embolus.

Owing to the fact that the current of blood pursues a straighter course into the left carotid artery than it does into the right, the embolus more frequently lodges in the left cerebral hemisphere. The order of frequency of the arteries involved, according to most writers, is middle cerebral, anterior cerebral, posterior communicating, anterior communicating, and the posterior cerebral.

On account of the necrobiotic process which takes place in the substance of the brain in consequence of the obstruction of a cerebral vessel, embolism of this locality is of far more serious import than that of any other part of the body. If the embolus is small enough to pass beyond the anastomosing branches of the cerebral arteries it lodges, of course, in the terminal twigs, in consequence of which the blood-supply to the area fed by such vessel is completely cut off. The process of softening now begins and goes on to the complete destruction of all the tissues to which the obstructed artery is distributed. Coincident with the destructive process going on in the brain substance, the embolus irritates the inner coat of the blood-vessel, weakening its resisting power, and eventually causes the development of a small aneurism which sooner or later ruptures, permitting a hemorrhage to take place into the substance of the brain. The first hemorrhage is not necessarily fatal, as the opening in the aneurismal sac is sometimes minute, and after a small quantity of blood is poured out the hemorrhage may cease spontaneously. A patient with a cerebral aneurism is doomed. A time comes, sooner or later, when a rupture of sufficient magnitude occurs to flood the surrounding parts, to plough up the healthy tissues, or break into the softened area and find its way into the ventricles of the brain.

The symptoms of embolism are sharp and sudden. In the midst of apparent health the patient is seized with violent headache, dizziness, and a confused state of the mind. Temporary unconsciousness supervenes, and the patient falls to the ground. Hemiplegia occurs in the majority of cases, and aphasia in nearly all. General or unilateral convulsions sometimes occur. If the patient recovers from the attack the hemiplegia and aphasia persist indefinitely or for a considerable length of time. The mental symptoms which follow in the wake of cerebral embolism depend upon whether the cortical substance is involved. If the cortex is not supplied by the obstructed artery there may be no derangement of the mental functions either as a result of the primary attack or of the necrobiotic process which takes place later.

Through the courtesy of Dr. Charles E. Leithead, who had

charge of the patient and who kindly invited me to participate in the post-mortem examination, I am enabled to report the following case:

F. L. R——, aged 15, of healthy parentage, had an attack of endocarditis at the age of four years, from which he never fully recovered. On November 20, 1900, while working in the field, he was suddenly seized with violent headache, staggered, and fell to the ground. Shortly after falling he vomited several times. He was taken home and placed in bed, where he remained two weeks. For several hours he was in a semicomatose condition. Immediately after the attack it was noted that both pupils were dilated, but the right more than the left. This persisted for several days. There was marked ptosis of the right eye; myopia and double vision lasting for a period of two months. He had aphasia, not being able either to read, write, or choose a word. This lasted about three weeks. There was no hemiplegia or convulsions at any time. After a period of about three weeks he was able to get out of bed, but he never regained his former health. He walked with a staggering gait and complained of a feeling of debility. Three months later there was a slight recurrence, which presented many of the symptoms of the former attack. It passed off, however, within a few hours, leaving him in much the same physical condition. On the evening of April 28, 1901, he complained of severe headache and went to bed of his own accord at 6.30 P.M. Before retiring he passed about three pints of limpid urine. Began vomiting about eight o'clock, which continued during the night. Became aphasic at 2 A.M. on the 29th. Right pupil widely dilated; ptosis of right lid. Pulse-rate and respiration were in no way affected. Although he could not speak he seemed to retain consciousness nearly to the end. He died at 11.30 A.M., April 29.

A post-mortem examination was held at 5 P.M. on the day of death. The body was spare and somewhat emaciated. Lungs, liver, spleen, kidneys, and alimentary tract were normal. The heart was hypertrophied, the mitral valves presenting a mass of vegetations. A few vegetations were to be seen on the endocardium and the aortic valves. The calvarium was opened and the brain removed. At its base was a firm blood-clot. The surface of the brain presented nothing abnormal. It was placed in Orth's fluid until sufficiently hard, when sections were made to discover the source of the hemorrhage. The third, fourth, and left lateral ventricles were filled with blood-clot. The right hemisphere presented nothing abnormal. On the left side, just beneath the cortex in the

ascending frontal gyrus and near the longitudinal fissure, a fusiform aneurism of one of the terminal branches of the middle cerebral artery was found. Its diameter was about one-eighth of an inch and its length about one-half inch. Immediately beneath the aneurism was a cavity about one inch in diameter filled with necrotic brain tissue and blood-clot. This cavity extended into the roof of the left lateral ventricle. By carefully washing the aneurism a minute opening in its wall was found through which the blood escaped. The flooding of the ventricles was now explicable. The aneurism had ruptured and poured its contents into the softened cavity, and from thence into the lateral ventricle. From the lateral ventricle it passed through the foramen of Monroe into the third ventricle, and from the third ventricle through the aqueduct of Sylvius into the fourth ventricle.

As to the formation of the aneurism, there can be no doubt that it was caused by the dislodgment of a particle of vegetation from the mitral valves of the heart. This occurred at the time he had his first attack in November, 1900. The second attack, two months later, can be attributed to a slight hemorrhage from the aneurism which occurred at this time but which was spontaneously arrested. That his mental functions were not in any way interfered with, after his recovery from the first attack, is explained by the fact that the cortical cells in the neighborhood of the softened area were not involved as a result of the embolism or of the softening process. Many microscopic sections of the cortex in this locality showed normal cells throughout. Of course, the axis cylinders of all the neurons which passed through the softened area were destroyed. Among these were undoubtedly many of the association neurons connecting the centers concerned in written and spoken language, as well as the motor neurons supplying the right eye; hence the persistent aphasia and the motor difficulty of the right eye. The absence of hemiplegia is to be explained from the fact that the tissues to which was distributed the occluded artery did not happen to contain any important motor tracts.

ARTERIOSCLEROSIS.

BY HAROLD N. MOYER, M.D., CHICAGO.

There is a wide difference in opinion as to the meaning of the term arteriosclerosis. Atheroma is used synonymously by some writers, but it would be wise if a distinction were made between the two conditions, and the term atheroma restricted to the end process of arteriosclerosis. The disease of the arteries begins by a deposit in the middle and internal coat, which ultimately leads to a fatty degeneration, to which the term atheroma should be applied. There is still much obscurity in the relation of these changes. Does sclerosis always precede the fatty degeneration? What relation do sclerosis and atheroma bear to miliary aneurism? These questions must be left to the future. One thing is certain: the amount of work that has been done on the arterial system is very much less than its importance justifies. It is one of the chief causes of death if we only include those cases of arterial rupture which are most obviously associated with the condition; if we add to the list the deaths that may fairly be attributed to vascular disease, such as contracted kidney, heart lesions, etc., it furnishes a mortality far in excess of all the acute diseases. The difficulty in many cases is in deciding whether the changes in the vessel wall are primary or secondary. In Bright's disease it is possible that the vascular sclerosis may result from the defective elimination due to the inflammation, or the kidney changes may be due to the increased vascular pressure. It is possible that the practical application of Gaertner's tonometer may do much to clear up the obscurity which now exists regarding vascular degeneration.

As a rule arteriosclerosis comes on in advanced life, and the old saying that a man is as old as his arteries is quite as true as most maxims. Occasionally extensive sclerosis is noted in early youth, but instances are exceptional. In the fourth decade cases become more frequent, and in the fifth decennium the condition is common. The process in some degree is always present in the aged, though the examples that are given of men who are active mentally and physically after four score show that the process may be long delayed. Bismarck and Gladstone are often mentioned, but one of the most striking examples was Schaumberg, the celebrated general of William III., the hero of a hundred battle-fields, who when over eighty years of age commanded the army in Ireland under circum-

stances of privation, pestilence, and anxiety such as might well have sapped the resolution of a younger man.

The causes of arteriosclerosis are quite as obscure as any chapter in the etiology of medicine. As has already been pointed out, it is difficult to distinguish cause from effect. There can be no extensive arteriosclerosis without a rise in blood-pressure, and this may lead to changes in the organs. Toxemia in some form is unquestionably the cause of the majority of cases. It may have its origin in defective elimination or be the product of the acute or chronic infections. Syphilis is a frequent cause of arteriosclerosis. Whether there is a difference between the sclerosis of syphilis and that due to other causes is an unsettled fact. In some cases there is an endarteritis that may be termed specific, and over which specific treatment exerts considerable influence. These cases usually occur within ten years of the primary infection. Syphilitics suffer from early arterial changes strikingly like those which occur in the aged, and which do not yield to specific treatment. We may conclude that syphilis acts as a predisposing cause of arteriosclerosis, as well as having a distinct endarteritis, the latter alone yielding to antisyphilitic remedies.

Defective elimination is the direct cause in the majority of cases. Apoplexy is one of the commonest results of arteriosclerosis, and this has been commonly ascribed to plethora and a full habit. This dictum must be modified, as the figures show that a large number of those suffering from apoplexy are spare. A red face and sanguine temperament are not specially indicative of apoplexy, only in so far as they indicate a too liberal consumption of food. As a rule the spare individual of bilious temperament suffers more degeneration, providing he is a liberal feeder, than does the one who accumulates flesh. Uric acid has become the fashionable scapegoat. If we mean by this simply defective elimination we shall have a broader conception of the underlying principles. This furnishes the explanation of the development of arterial disease in the aged: the eliminative organs become less efficient, and there is an accumulation of waste products which excites a proliferation in the connective tissue of the smaller arteries.

The acute diseases are charged with causing arteriosclerosis, but they play a secondary rôle. Scarlet fever, typhoid, and other infections probably do not last long enough to cause extensive arterial disease, but they frequently initiate an inflammation of the kidneys which leads to extensive vascular degeneration.

If the causes of arteriosclerosis are obscure the symptoms are

still more uncertain. Frequently cases live for years with tortuous temporals, arcus senilis, and a hard pulse with a curved radial. In other cases these symptoms are almost absent, and yet they suffer from arterial rupture. This shows the distinction between atheroma and sclerosis; the latter may exist in high degree and for a long time without rupture, but if fatty degeneration and softening occur the wall gives way. The distribution of the sclerosis determines to a large extent the symptoms. As a rule the smaller arteries are most involved, but it is rare that the aorta escapes. All branches of the arterial system are not equally affected, and the extent of the process in the arteries of the different organs is subject to wide variations. The large arteries may be extensively affected with a marked alteration in vascular pressure.

If the tonometer of Gaertner fulfils its expectations valuable light will be thrown upon arterial disease. In it we have an accurate and rapid instrument for measuring vascular pressure. This has heretofore been lacking, the only substitutes being the finger or the sphygmograph. The latter is very unreliable. The finger readily appreciates a change in the character of the pulse, but the conditions are so variable under which the artery is felt that at best only an approximate idea of vascular pressure can be reached.

The chief clinical signs of arteriosclerosis are increased arterial tension, palpable thickening of the arterial wall, accentuation of the second aortic sound, and hypertrophy of the left ventricle. The most important is the non-valvular hypertrophy of the left ventricle with accentuated second sound. The next most important is high arterial tension, but this may be temporary; if it is continuously found over a considerable period it is strongly indicative of arteriosclerosis. Auscultation of the posterior surface of the chest furnishes the best index of an accentuated second sound; if it is heard distinctly between the seventh dorsal vertebra and the spine of the scapula it is strongly confirmatory of arterial contraction.

The prognosis is usually unfavorable, but it depends on the extent to which the heart, brain, or kidneys are involved in the degeneration. The disease once set up is apt to be progressive, because the conditions that give rise to it are irremediable. Patients should be frankly told the condition of affairs and warned against a persistence in habits or methods of life that favor the progress of the disease. Much is to be gained by a recognition of the condition as a disease *per se*. The profession has been slow in recognizing the condition clinically, notwithstanding the frequency with which it is observed post mortem.

In treatment much depends upon a regular habit of life. These patients should avoid emotional strain. Exercise should be regular but not excessive. Alcoholics and tobacco should be interdicted. Above all the food supply should be reduced to a diet which secures metabolic equilibrium, but nothing should be taken beyond this. The interdiction of meats on the theory of a uric acid diathesis is false, but patients should be given a due proportion of proteids, carbohydrates, and fats. It is possible to obtain from milk and eggs all of the nitrogen that is needed; if these agree with the patient he may obtain them from this source, but there is no evidence that they are better than meat. The chief difficulty is in reducing the total quantity of the food in liberal feeders to an amount required for the nutrition; on such a diet the patients often complain that they are being starved.

The medicinal treatment in the complicated cases depends upon the underlying conditions. Before there has been extensive damage to the vital organs the treatment must consist of a recognition of the cause: if faulty nutrition, this must be corrected by diet; if toxemia is present an effort must be made to eliminate. If syphilis is recent a vigorous antisyphilitic course must be instituted.

Temporary relief may be obtained with nitroglycerin. It is surprising what large doses can be taken without disagreeable symptoms. The dose is to be regulated by the idiosyncrasy of the patient. Iodide of sodium in small doses, five to seven grains three times a day well diluted, continued for months, has been useful, but no medicinal treatment is of avail without careful attention to the personal hygiene of the patient.

BOOK REVIEWS.

Diseases of the Upper Respiratory Tract: The Nose, Pharynx, and Larynx. By P. Watson Williams, M.D. Fourth Edition, Illustrated. Price, 17s. 6d. Bristol: J. Wright & Co. 1901.

The work of Dr. Williams is easily the leading English manual upon diseases of the nose and throat. It is so much enlarged in this fourth edition that it would almost be thought an entirely new work; but as a matter of fact it is only an earlier and smaller book expanded and amplified. A striking departure in the art of book-making is found in a pocket at the end of the volume. It contains twelve stereotyped plates, together with a handy collapsible stereoscope by the aid of which a student can renew his knowledge of the anatomy of the parts by examining the photographs of sections of the head with the advantage of a true perspective.

The first chapter gives the anatomy, physiology, and embryology of the parts; the second chapter a general examination of the pharynx, larynx, nose, and ear, the latter being included quite properly in a work upon the nose and throat, though there is no specific description of the diseases of the ear. The manner in which the writer describes the methods of manipulation and the use of instruments will commend the work to the practical physician. The remainder of the work is devoted to the special morbid conditions found in the throat and nose. The writer has not made the mistake of attempting to include in a practical treatise of 450 pages the varying views of different writers, but has unhesitatingly given his own or what he regards as the best method. It is evident from a perusal of the work that he is a specialist, well grounded in the general practice of medicine. This is shown in his brief account of spurious hemoptysis. In discussing lupus and tuberculosis he takes the ground that they are distinct affections, but there is no reason given for this view. That *bête noire* of the throat specialist, atrophic rhinitis, is placed among the trophoneuroses, and for its treatment cupric electrolysis is highly recommended. In operations on the nose and throat the writer prefers nitrous oxide for short anesthesia, and chloroform for prolonged ones.

Ready Reference Handbook of Diseases of the Skin. By George Thomas Jackson, M.D. Fourth Edition. Price, $2.75. New York and Philadelphia: Lea Brothers & Co. 1901.

In commenting on the last edition of Jackson's work we took occasion to refer to the nomenclature of diseases of the skin. In this department of medicine a constant effort has been made to multiply terms and divisions until the reading of a modern text-book on skin diseases is scarcely possible to the ordinary practitioner. The specialty is far from the basic principles of pathology, especially in its nomenclature, which is fanciful, erratic, and for the most part useless.

In this fourth edition new sections have been added on acne keratosa, acne urticata, caraté, craw-craw, endothelioma, *erythrodermie pityriasique en plaques disseminées*, Fordyce's disease of the lips, granuloma necrotica, impetigo of Bockhardt, lichen annularis, lichen pilaris, pityriasis lichenoides chronica and verruga peruana. How important these additions may be we are not prepared

to say, but the "red disseminated pityriasis plaques" ought not to masquerade in a French dress before English readers. If the dermatologists after exhausting Greek and Latin are to invade the modern languages for terms, where is the end?

The work of Jackson is a terse, accurate description of diseases of the skin. An alphabetical arrangement is followed which is perhaps as useful as the average classification. The articles are concise and well written. Some of the illustrations are good, but others are indistinct. The work contains 642 pages, and is especially rich in formulæ and practical methods of treatment. It easily takes the place of more ambitious "treatises," and will prove a valuable work for general practitioners who have the care of skin diseases.

Food Analysis. By Henry Leffmann, A.M., M.D., and William Beam, A.M., M.D. Price, $2.50. Philadelphia: P. Blakiston's Son & Company.

Whatever may be said of the present neglect of the pure food question in this country, it will ultimately come to occupy a very important position in our public health service. The degradation of food which is going on so rapidly will soon make such serious inroads on public health that it cannot fail to attract the attention of legislators, which will result in the passing of laws limiting adulteration. For the enforcement of such a statute it will be necessary to have a laboratory in which foods may be analyzed. Of necessity a work devoted to food analysis must be subject to constant revision. Not only do the means of adulteration change from week to week and month to month, but constantly there must be devised new tests to meet new requirements. Even in the older and more accepted methods improvements are constantly suggested by which analysis is made more concise and easier of application. In the above work the authors have succeeded in collecting most of the valuable matter relating to food analysis which is carried on in this country. In addition the *Analyst*, the official organ of the Society of Public Analysts of Great Britain, has been extensively drawn upon. There is an admirable chapter on coloring matters used in food, and a list of the colors which are permitted by the National Association of Confectioners of the United States is given. The chapter upon milk and milk products, in view of the attention which this subject is attracting at the present time, will be read with great interest.

Handbuch der Physikalischen Therapie. Von A. Goldscheider und F. Jakob. Erster Theil, Bd. I. Leipsic: 1901.

This is the first part of the first volume of what will ultimately be the most complete treatise upon physical therapeutics that has so far appeared. The work is dedicated to Leyden in honor of his 70th birthday. It is to be a collective work or system, which shall include everything that has been published upon the subject named. In this first volume there is a historical introduction by Tagel. Climatotherapy is discussed by Reubner and Nothnagel; the therapeutics of high altitudes by Loewy and Eichhorst; pneumotherapy and its indications by Du Bois Reymond and Liebig. The chapter on inhalations is by Lazarus; bathing by Liebermeister and Glax; sea-therapy by Hiller and Weber; hydrotherapy by Winternitz and Strasser; and thermotherapy by Goldscheider and Friedlaender.

Each subject in the first volume is not only practical, but there is a presentation of all that is known upon the physiological side of the questions involved.

LEADING ARTICLES.

THE INITIAL RASHES OF SMALLPOX.

The specific eruption of variola is often preceded and in rare cases accompanied by a hemorrhagic or erythematous eruption which is generally spoken of as a rash. This symptom is very confusing and has doubtless led to many grave errors. In our standard text-books these eruptions during the period of invasion are mentioned, but only a paragraph is devoted to them, which may be overlooked. These rashes are very different from the smallpox eruptions and may easily suggest a diagnosis which may prevent the recognition of the disease when its true characters are known.

The period of invasion in smallpox, marked by fever, chills, and vomiting, commonly covers three to four days. The rash may appear early or late in this period. Osler says that it is more frequent in some epidemics, and it occurs in from 10 to 16 per cent of cases. H. Roger and Emile Weil (*La Presse Médicale*, July 31, 1901) have studied the rash in 978 cases, and have determined that the number of cases with initial rash bore some relation to the severity of the disease. Their figures for the total percentage of those having a rash is nearly the same as Osler's—18.4 per cent. The cases of varioloid gave the smallest number, 12.8 per cent; the discrete and confluent cases, 21 per cent; the confluent 20.7 per cent; the hemorrhagic 47.5 per cent. Of the forty cases of hemorrhagic smallpox all died, and of these nineteen had initial rashes. Six showed some difference in the frequency of rashes, women giving a percentage of 22.1, and men 14.48.

In speaking of the form of the rash Osler says two types can be distinguished—a diffuse scarlatinal and a macular form—either of which may be associated with petechiæ. The scarlatinal rash may come out on the second day and be as diffuse and vivid as a true scarlatina. The macular form may be identical with that of measles.

Roger and Weil distinguish six forms of rash—erythematous, urticarial, morbilliform, scarlatiniform, purpuric, and astacoïde. The terms are a sufficient indication of the character of the eruptions. The erythema occurs in plaques of a uniform red color and disappears upon pressure. The urticarial form occurs in white plaques, reddened at the edges and slightly raised, which generally

itch. More frequent than the two preceding is a macular form of erythema, the spots slightly elevated, with a velvety feel, the reddened areas separated by healthy skin. This form exactly resembles measles, in some slightly darker and in others lighter than measles, but in no case is there sufficient difference to distinguish the eruption from true measles. The scarlatiniform rash exactly resembles that of scarlet fever. The skin in the affected region is a dark red, which disappears only in part under pressure. The purpuric rash is identical with that of ordinary purpura, namely, a small hemorrhagic point not altered by pressure.

The astacoïde or lobster-like rash is identical with the hemorrhagic form of smallpox. It is found in cases which are apparently benign, and in those in which the early symptoms are severe. Its appearance is a certain indication of a fatal termination. Unlike the other rashes it is general, excepting the face. It is not a generalized purpura, but has a uniform tint, a diffuse hemorrhagic suffusion. In some cases certain parts of the body (the forearms, thighs, and legs) escape, or are only slightly reddened, while other parts have a deep red color, and still others a violet tint. Severe hemorrhages may take place, forming large black patches.

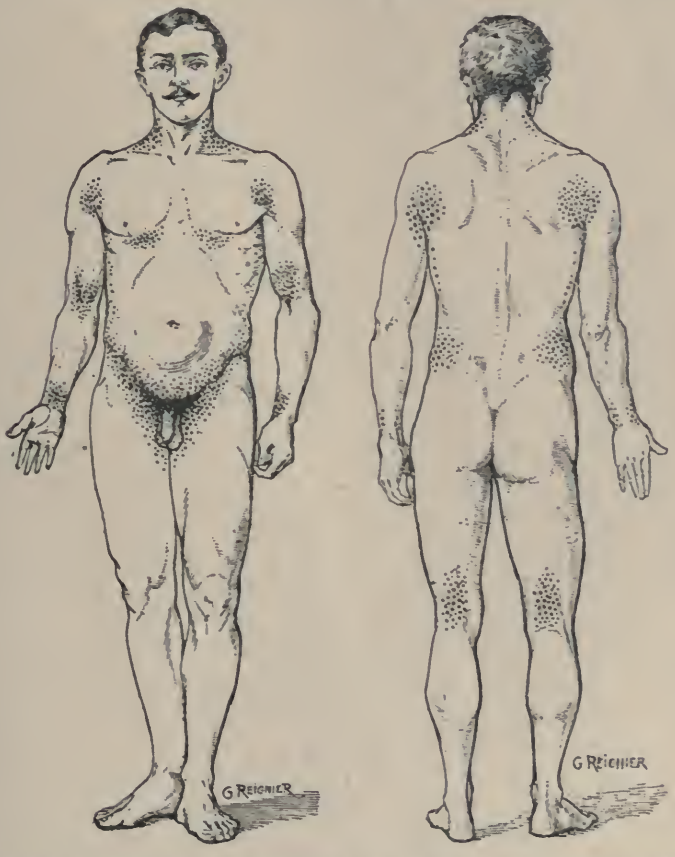
These eruptions may be associated in the same patient. Not uncommonly the measly and scarlatiniform are found together, and either or both with the purpuric. In the 171 cases of Roger and Weil 146 had a single eruption. In 25 other cases the eruptions were associated, in all giving 51, or 197 rashes in 171 cases. The following table gives a summary of the cases:

Variety.	Eruption.						
	Pure—146 instances.			Associated—25 instances.			Total in 171 cases.
	Generalized.	Partial.	Total.	Generalized.	Partial.	Total.	
Scarlatiniform	14	39	53	16	1	17	70
Morbilliform	27	6	33	8	1	9	42
Erythematous	3	1	4	1	0	1	5
Urticarial	1	0	1	1	0	1	2
Purpuric	16	29	45	0	23	23	68
Astacoïde	10	0	10	0	0	0	10
Total	71	75	146	26	25	51	197

The rash almost always precedes the specific eruption, and commonly appears on the first or second day of the invasion, disappearing in twenty-four or forty-eight hours with the advent of the true

eruption of variola. The purpuric rash is the most persistent, disappearing like other local hemorrhages into the skin.

Osler says that in some cases the rash is generalized, but as a rule it is limited to the lower abdomen, to the inner surface of the thighs, and to the lateral thoracic region or axilla. The accompanying figure shows the predilection of the eruption for certain portions of the body. The generalized rashes cover the greater portion of the integument with the exception of the face; but this part



Schematic representation of the usual site of the localized rashes.—ROGER and WEIL.

is often involved in the measly and astacoïde forms. In a partial rash the inguinal region is most frequently involved, usually symmetrical, sometimes limited by the inguinal fold, but usually extending down the thigh, or upon the abdomen to the flank. The axillary rash forms a triangle with the base below the upper portion, extending in front and behind so that it can be seen when

the arms are by the side. The mammary eruption may form a plaque or a band. Involvement of the joint flexures is comparatively rare, the popliteal space being most often affected. Occasionally the thoracic and abdominal eruption may form a band encircling the body resembling a double zona.

The site of the initial rash often determines the location of the earliest and most severe eruption of the smallpox papules. A case of discrete smallpox may present in the inguinal region, that had previously been the seat of a purpuric or scarlet rash, a confluent type of pustule. In exceptional cases the variolous eruption may not involve the parts covered by rash.

Roger and Weil have observed but three cases of late rash—one case on the fifteenth and another on the twenty-fourth day of a confluent smallpox. The eruption was generalized in each case: one was erythematous, and two purpuric. The three patients died. The generalized rashes from a prognostic standpoint are grave; the localized rashes are most frequently observed in the slight cases. The purpuric rash follows the same general rule, excepting that the mortality is slightly higher.

The prognostic relations of the form and extent of the eruption are abundantly shown in the table of 171 cases of Roger and Weil.

Rash.	Varioloid—Recovered.	Discrete and Coherent.			Confluent.			Hemorrhagic—Died.	Total.		
		Recovered.	Died.	Total.	Recovered.	Died.	Total.		Recovered.	Died.	Total.
Scarlatiniform: Generalized	...	9	2	11	1	1	2	1	10	4	14
Scarlatiniform: Inguinal	27	3	1	4	1	5	6	...	31	6	37
Scarlatiniform: Axillary	1	...	...	...	...	...	...	...	1	...	1
Scarlatiniform: Inguinal and Axillary	...	...	...	...	1	...	1	...	...	1	1
Morbilliform: Generalized	11	6	1	7	1	7	8	1	18	9	27
Morbilliform: Inguinal	4	...	...	...	...	1	1	...	4	1	5
Morbilliform: Thoracico-abdominal	1	...	...	...	...	...	...	...	1	...	1
Erythematous: Generalized	...	...	...	...	2	1	3	...	2	1	3
Erythematous: Localized in the upper extremities	1	...	...	...	...	...	...	...	1	...	1
Urticarial	1	...	...	...	...	...	....	...	1	...	1
Purpuric: Generalized	3	...	...	...	2	11	13	...	5	11	16
Purpuric: Inguinal	...	14	4	18	5	3	8	...	19	7	26
Purpuric: Inguinal and axillary	...	2	...	2	...	...	...	...	2	...	2
Purpuric: Inguinal and dorsal	...	1	...	1	...	...	...	...	1	...	1
Astacoïd, generalized	...	...	...	...	...	...	...	10	...	10	10
Associated rashes	5	10	1	11	1	1	2	7	16	9	25
Total	54	45	9	54	14	30	44	19	113	58	171

TREATMENT OF FOREIGN BODIES IN THE URETHRA.[1]

The treatment of foreign bodies in the urethra varies according to their nature. If a calculus is arrested in the urethra, as may happen after lithotrity, it is necessary to remove it immediately. It may happen that such a calculus will be passed after an attack of nephritic colic. It has made its way into the bladder and has become engaged in the urethra, where it is arrested. Occasionally a foreign body is introduced accidentally. In those suffering from prostatic trouble, habitually using the catheter, it becomes old and eventually breaks in the canal. Occasionally a metallic sound may break while in the urethra.

Children introduce foreign bodies into the urethra, and among adults they are introduced as a result of sexual perversion. Diverse causes lead to the retention; in some instances it is due to a spasm of the urethra by which the foreign body is carried along the canal, or perhaps more frequently it is due to the ill-directed efforts of the patients to extract the foreign body.

In some cases it is possible to remove the foreign body, such as a calculus, by forcible micturition when the meatus is closed. If the foreign body is at the prostate, it would be unwise to attempt extraction through the anterior urethra as there is great probability of tearing the membranous portion. In such a case it is usually possible to force the foreign body into the bladder, from which it may later be removed. In some of these cases where it is immovable, it may be grasped by a urethral lithotrite and crushed. If the foreign body rests in the anterior fossa of the urethra and it is regular in outline, it is removed without difficulty. If it is too large to pass the anterior meatus, the latter should be freely divided and the foreign body seized with the forceps and removed. For the purpose of the removal of foreign bodies Collin's forceps are useful. These have a long, slender shank (Fig. 1), and can be closed until they are in contact with the foreign body, as shown in Fig. 2, when they can be opened. If they are not actually in contact with the foreign body as the forceps are opened, it is certain that the urethra will be torn (Fig. 3).

An excellent instrument known as the bascule curette (Fig. 4) fills an important place in the removal of foreign bodies. This can be introduced closed and passed to the side of the obstruction. When posterior to it the instrument is opened (Fig. 5). The possibility of tearing the mucous membrane with this instrument was

[1] H. Hartmann: *La Presse Médicale*, July 24, 1901.

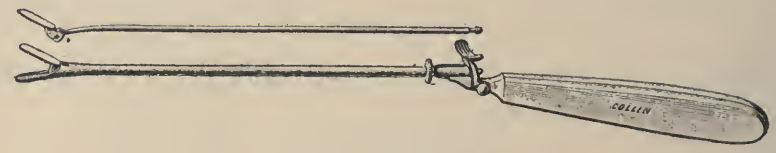


FIG. 1.—Collin's forceps.

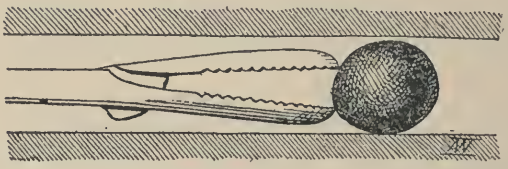


FIG. 2.—Forceps brought in contact with the foreign body before the blades are separated.

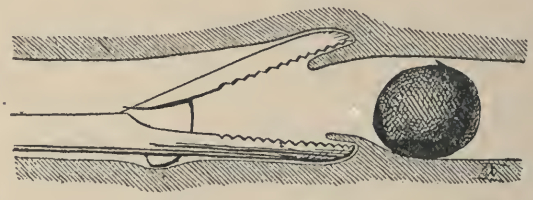


FIG. 3.—Effect of opening the jaws of the forceps before actual contact with the foreign body; the mucous membrane is certain to be included in their grasp.

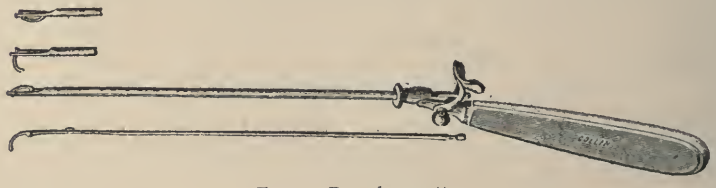


FIG. 4.—Bascule curette.

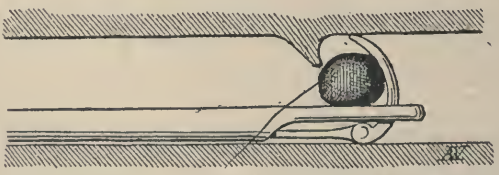


FIG. 5.—The bascule curette opened behind the foreign body.

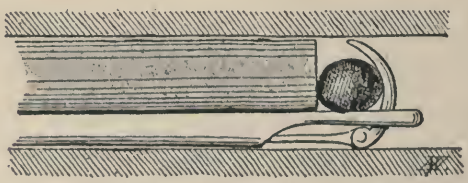


FIG. 6.—Wax bougie passed along the shank of the instrument separating the walls of the urethra.

recognized by Guyon, who in addition inserted a bougie of wax which was passed down on the foreign body after the curette was in position. This separates the walls of the urethra and dilates the canal sufficiently for the passage of the foreign body (Fig. 6).

In cases of a pin with a head which is engaged in the urethra, the point is always in the direction of the urethra. In such cases all that is necessary is to force the pin through the urethra and out through the skin. The point of the pin is then carried backward toward the bladder, which causes the head of the pin to present toward the front. It can then be grasped with the forceps and removed the same as a round foreign body having no sharp point.

THE DIET IN TYPHOID FEVER.

We have had occasion in the recent past to discuss both editorially and in our Abstract department the question of diet in typhoid fever. Some Russian writers and others have headed a strong revolt against a strict milk diet in typhoid. One Russian writer with abundant experience in a large military hospital has kept his patients upon a mixed and nearly solid diet. It is to be remembered that these were soldiers accustomed to living an out-of-door life with plain and coarse food, and it is probable that most of them were taken down with the fever while in vigorous health. The experience in typhoid with another class of patients would perhaps give somewhat different results as far as diet is concerned. We are prone to forget that diseases as well as treatments are modified by varying conditions of environment as well as race. It is not difficult to see that a Russian soldier can be dieted somewhat differently during typhoid from a patient who has been in the habit of ingesting only the most delicate and best prepared of foods. With such differences in mind it would be folly to dogmatize on a series of statistics based upon the recovery rate.

The theory upon which a strictly milk diet is followed in typhoid fever is based upon the assumption that solid food irritates the intestine, and passing over the ulcerated surface of the bowel may lead to hemorrhage or perforation. For many years this view has been prominently expressed, and many practitioners even at the present time would as soon administer a deadly drug to the patient as to give him the smallest quantity of solid food. A moment's thought will convince one that the administration of whole milk is in effect the giving of solid food. As soon as it reaches the stomach the casein is coagulated, and it requires a digestive process quite as vig-

orous as that necessitated by many soft albuminous substances. It is a clinical fact that typhoid fever patients who take kindly to milk do better than those who cannot take milk, but this is due to the fact that milk is one of the most easily digested of foods. It contains the natural proportion of the three main elements of food for the nutrition of the body, and it forms a suitable nourishment for fever patients. This is ample reason for the preference given to a milk diet in typhoid, and not the fact that if the smallest quantity of other food is given it will cause a perforation or an arterial rupture in the wall of the intestine.

The administration of milk has been erected to almost a fetish in the treatment of typhoid fever. As soon as the diagnosis has been made, a certain quantity of milk is poured into the patient under the theory that in some way, if only sufficient milk be given, he would be able to combat the disease. But little thought was taken of the possibility of the milk not being thoroughly digested, and that it was only the amount which was assimilated that strengthened him in the combat with disease. Any portion that is incapable of digestion only leads to fermentation in the intestine, and bowel disturbance, and is a hindrance rather than a help.

The physician with abundant clinical experience in typhoid will, we think, agree with the view that the too early stuffing of the typhoid patient, either with milk or other food, is an unwise proceeding. There is certain experimental evidence that goes to show that infections in animals are best tolerated upon a restricted diet. A series of animals were injected with a given quantity of virulent culture. One-half of them were kept without food, and the other half were given a liberal diet. Those that were starved almost without exception survived the infection, while of those that were fed the most of them succumbed. The same lesson is taught in the loss of appetite which attends the onset of most of the acute infections; this indication should be thoroughly respected. The favor with which beef tea, made in the old-fashioned way, has been looked upon by the laity is doubtless due to the fact that it contains practically no nourishment and is no tax upon the digestive organs. Chemists now teach us that from a nutritional standpoint it is almost devoid of value. We believe that it is one of the best articles of diet in the early days of the typhoid, especially when it is made so that it is almost devoid of food value. Administered hot, it is gently stimulating and encourages both the patient and the friends with the idea that nourishment is being taken. It overcomes also that sense of oppression which follows the entire withdrawal of food for a number of days.

There comes a time when it is necessary to begin to feed the patient, and then care must be exercised. Milk, as we have said, should have the preference; but there are many patients who dislike milk or whose digestive organs do not seem to readily assimilate it. In such cases it is wise to individualize the diet. While it is true that milk is the best food that can be given, it is not the only safe food. Albumen is quite readily administered in the form of white of egg, shaken up with lemon juice or given with seltzer water. Various jellies, soft-boiled eggs, arrowroot, barley water, custards, and meat juice have their appropriate places in the dietary of typhoid fever. A much neglected procedure is the careful examination of the discharges from the bowels. If this were systematically done in every case, valuable facts would be obtained in the dieting of these patients. It would not resolve itself into the administration of so many ounces of milk every hour, whether it was assimilated or not, but the appearance of undigested portions of milk in the stools should be a signal for the lessening of the quantity. Everything depends in a case of typhoid fever upon the success of the nursing. It is not alone the duty of the physician to watch the temperature, the pulse, and the respiration, but it is of much more importance that he have a definite idea of the manner in which the patient is being nourished. One of the best means of estimating this is by a careful examination of the discharges from the bowel.

EDITORIAL COMMENT.

LABORATORY METHODS IN DIAGNOSING TYPHOID FEVER.

It would seem that the diagnosis of the commonest fever in the temperate regions of the United States would be comparatively simple. One has only to recall the findings in relation to the typhoid epidemic that prevailed in our camps during the Spanish-American war to learn that the recognition of typhoid fever is by no means as easy as is generally believed. There seemed to be among those who had charge of the troops a deplorable ignorance of the general clinical type of the disease. We are not now speaking of the doubtful or complicated cases, but those in which the typical symptoms of typhoid fever were fairly marked. The merest tyro in medicine could not mistake the continued fever with the evening rise, the rose spots, and gradual onset, with gurgling in the right iliac fossa, for anything but typhoid. But a large number of the cases begin in an atypical fashion. In some cases the temperature may not be marked, or if so it may present the continued type or be higher in the morning than in the evening. There may be extreme pain in the abdomen, with distention, simulating a peritoneal or other abdominal inflammation. The anomalous cases of typhoid are probably the most frequent, and it is in these that laboratory methods are of the greatest value.

The most important of these tests is that of agglutination, known as the Widal. Unfortunately, it is hardly ever present before the beginning of the second week. The findings with this test are not conclusive. If it is not found when persistently looked for, it is strong evidence that the disease is not typhoid, as it is present in 95 per cent of cases. Hence the negative Widal reaction is of value only in excluding typhoid. The positive reaction does not show conclusively that the disease is typhoid, as the reaction may persist months and years after the person has had typhoid fever. Unfortunately, the Widal test cannot be carried out at the bedside and is not within the reach of the general practitioner. Many of our boards of health have undertaken the application of the test.

The diazo-reaction is a test which is easily performed, but unfortunately it is of comparatively little differentiating value. It is obtained in cases of septicemia, tuberculosis, and in other conditions which may be confounded with typhoid fever. It is the best method

by reason of its simplicity and the rapidity with which it can be carried out, and should be made, as it may throw valuable light upon the case.

The leucocyte count is one of the most valuable differential diagnostic points in typhoid fever. In uncomplicated typhoid the leucocytes are always diminished, the average being five thousand or less. Taken in connection with the clinical symptoms, the diazo and the Widal test will often enable one to differentiate typhoid fever from suspicious abdominal conditions that would suggest the advisability of operation. The leucocyte count is of no value in determining the diagnosis of certain fevers in which there is no increase in the leucocytes. It will not distinguish between malaria and typhoid, for neither of these is accompanied by a leucocytosis; but it will enable one to differentiate with a considerable degree of accuracy between a general septicemia or peritonitis and typhoid fever. If marked leucocytosis is present, as high as ten thousand or over, the disease under consideration is probably not typhoid, and is certainly not an uncomplicated typhoid.

The typhoid bacillus has been found in the blood, urine, and feces of typhoid patients, and with the help of a man trained in bacteriological research and an excellent outfit, this is a direct means of making the diagnosis. Unfortunately, they are far beyond the average clinician; even in the best hospitals they are so difficult of application that little is done with them except in original research. Every year a few cases of unrecognized typhoid pass through our best hospitals and appear on the autopsy table. How frequently is typhoid unidentified in private practice? Much oftener than is generally supposed.

NATURAL IMMUNITY FROM TUBERCULOSIS.

One of the most interesting papers communicated to the British Congress on Tuberculosis was that on "The Natural Immunity from Tuberculosis in Natal, South Africa," by James F. Allen (*The Lancet*, July 27, 1901). That an entire community should be practically free from tuberculosis, though exposed to the infection, is well worthy of special study. Altogether too much attention has been given to the question of preventing the infection of this disease rather than in developing natural immunity.

Natal is a part of Southeastern Africa, having a coast line of 200 miles and an area of approximately 20,000 square miles. It contains about 60,000 Europeans, one million Zulus, and fifteen thou-

sand Indians, races dissimilar in habits and origin. The country occupies the eastern slope of the Drakensberg range, there being no flat land intervening between the mountains and the Indian Ocean, hence the drainage is excellent. Natal is completely free from malaria. Dust storms are the most trying climatic condition, but they are not very frequent, rarely more than a dozen during a year. The country, occupying practically the side of the mountains, possesses three fairly distinct climates. The climate of the coast is that of a warm and semitropical district, humid during the spring and summer, from September to May, with an average mean maximum temperature during the year of 77.8°. From April to October the atmosphere is bright, clear, and free from frost. At an altitude of from two thousand to three thousand feet the rainfall is about thirty inches; the atmosphere is drier, and there is a distinct fall in temperature at night. In this region horses, cattle, and sheep thrive, and the ordinary cereals and fruits of the temperate zone are produced in abundance. Within it are high and at the same time sheltered districts peculiarly suited to persons threatened with or suffering from tuberculosis. The high lands, varying from 3000 to 6000 feet, is an open, rolling, grassy country on which cattle thrive. The atmosphere in summer is cool and dry, and cold and frosty in winter. During summer thunder-storms are frequent, but during the winter no rain falls.

The native cattle are found to be free from tuberculosis, but when they are housed and treated as dairy cattle they lose this immunity. Human beings in Natal are practically free from tuberculosis. This applies not only to tuberculosis of the lungs, but also of the glands and the skin. The occasional presence of a case of tuberculosis shows that it is a natural immunity, and not one that is due to the absence of infection. The writer is of the opinion that the open-air life, the benign climate, and healthy country have conferred this immunity. The best Natal house is but a shelter from the sun and rain. There is no overcrowding, consequently there is an abundance of fresh air and light. There is a tendency in Natal to abandon house-life, and open-air games, riding, bicycling, and outdoor occupations of all kinds are sought. So mild is the climate that people can sleep in the open air at night without risk. A favorite form of picnic is to camp out for a week or a fortnight at a time, with a blanket or less for covering at night. There are no factories. Night-work is almost unknown.

The Zulus are a stalwart, healthy race, husbandmen by calling, and are in possession of a large proportion of the colony. The 50,000

Indians, most all low-caste, coming from Bombay and its neighborhood, are also free from tuberculosis. The second generation of these Indians show a marked improvement in physique. It will thus be seen that three races—the European, Indians, and Zulus—almost free from tuberculosis, are to be found occupying the same country. The writer attributes it to the open-air life which they all live.

INCREASE OF CRIMINALS AND DEFECTIVES IN THE UNITED STATES.

We have had no opportunity to critically examine the statistics regarding the increase of crime in the United States, and it is possible there may be some fallacy, but the claim is made that during the period in which the population of the United States has increased about 25 per cent the number of criminals and defectives has increased 60 per cent. The numbers are too great to be explained away by any defect in the application of the statistical method. It is especially noteworthy that during the same period there has been an enormous relative decrease in the number of criminals and defectives in England, and that the decrease has been maintained in Germany and France, though not in such signal proportions.

Of the causes of this condition it is difficult to speak. Various writers advance different theories, but to our mind the chief factors are sociological. In common with most Americans, we feel a just pride in American institutions, and we firmly believe that this is the freest and best government on the face of the earth. Notwithstanding these facts, it is well occasionally to point out certain defects, because the best governments may sometimes go astray, unless directed by intelligence. We feel safe in assuming that the methods of dealing with the criminal classes in this country are at least fifty years behind those of England. The whole machinery for the detection of crime, the punishment of criminals, and, incidentally, a perfunctory effort at reformation, is in the hands of men who are devoid of any practical knowledge of criminality as a science, and for the most part have not the intelligence to follow the advice of those competent to give it. They belong strictly to the office-holding or governing class, and although not bad men at heart, their energies are so directed to keeping themselves in office that little time is left for the intelligent direction of their offices. For the most part the sheriffs in our large cities have practically nothing to do except to appoint their subordinates and draw their salaries. The machinery of the office is so run that it needs no personal direction on the part of its head.

An instructive chapter in municipal government is furnished by the experience of Chicago in the management of its fire department. After the conflagration of 1871 the necessity of having a fire department free from partisan politics was apparent to every one. A chief was appointed who was not interfered with in any way, being allowed to make all of his appointments, which resulted in a department so efficient that it was believed to be the best in the world. Thirty years later, when it became necessary for the old chief to resign his position, a new one was appointed, but he was distinctly enjoined to follow upon the old lines that politics should not interfere with the department and its efficiency should be maintained. It is singular that with such a lesson before the people they cannot see that the police, public works, and other departments could be made equally efficient if managed in the same way.

Investigations of the police departments in our large cities, repeated in every part of the country, have shown a degree of corruption and such an association between crime arresting and crime producing factors that there is little wonder the number of criminals and the amount of crime are increasing apace.

The sociological conditions of England tending to the production of criminals are not different from what they are in this country. Like us there has been the same tendency for the concentration of the population in the large cities and towns. A striking difference in the two countries is that the cities of England are well governed, while in the United States they are not. The police service in the large towns and cities of England and on the continent, and the general management of the criminal and defective classes, are far ahead of what obtains in this country. To the defects in our police systems and the obvious shortcomings in our penal institutions are to be charged the disproportionate increase of crime in America.

AN IDEAL FOOD FOR THE VEGETARIAN.

According to a note in the *Montreal Pharmaceutical Journal* for July, 1901, a new vegetable has just been discovered which contains all of the necessary chemical constituents for the nutrition of the human being. This will doubtless prove of great interest to the vegetarian cult, as their efforts to supply the necessary nitrogen without destroying their digestion by an excessive consumption of starch have not heretofore been crowned with success. We now speak of the pure vegetarians, those who exclude milk and eggs from their dietary. Peanuts and beans have been largely employed

to supply the required nitrogen, but those who have not inured their digestion to these substances have great difficulty in assimilating them.

The curious plant which was described by M. Balland before the French Academy of Science is termed "voandzou." It is believed that it is the only plant which is known to possess in proper proportion all the elements that are required for the nourishment of man. It is a native of tropical Africa and is largely cultivated by the negroes. In southern Asia it is common, but it does not grow in America, excepting in Brazil, where it is known under the name "Mandubide Angola." Its nutritive portion consists of large masses which are enclosed in large pods like beans. When raw it tastes like ordinary bean, but when cooked has the flavor of chestnuts. They contain about 10 per cent of water, 19 per cent of nitrogenous matter, 6 per cent of fats, and 5 per cent of starch with 4 per cent cellulose. The conclusion of Balland was that immediate steps should be taken to cultivate this plant wherever it can be grown. It is not believed that it can be successfully cultivated in Europe, but it is thought that it will prove an admirable food supply.

Mushrooms contain a large proportion of nitrogen, but it is doubtful if it is in an assimilable form. The black bean of Central America and Mexico contains a large proportion of nitrogen, and hence it is an invaluable source of food supply to the poor of those countries, with whom meat is almost unknown. The black bean is readily digested, but the hard white bean of the United States is injurious because of the disturbance which it sets up in the alimentary canal; but like its southern and more digestible relative it contains a large proportion of nitrogen.

The new food may contain a much larger proportion of nitrogen than any which is now available in the vegetable kingdom, but it will have to be shown in the new product that the nitrogen is in an assimilable form. Substances which contain large quantities of nitrogen derived from the vegetable kingdom are commonly difficult of digestion. This may prove to be the case with the new food.

THE DUALITY OF DYSENTERY.

Dysentery is a frequent disease in hot climates, and it is to workers in the field of tropical medicine that our knowledge of dysentery is to be credited. Nevertheless, cases of dysentery of an obstinate character are by no means infrequent in the southern

portions of the United States, and they are found, though much less frequently, in the northern parts. The ordinary diarrhea occurs from fermentation in the intestinal tube, which promptly disappears upon the withdrawal of food or antiseptisizing of the intestinal tract. Such is not the case with dysentery proper, in which there is a specific infection. It is now generally believed that the bacillus dysenteriæ is the cause. The distinct form and character of this bacillus is known, and its discovery is to be credited to the Japanese physician Shiga. The infection by this bacillus is a constitutional disease, in this respect resembling typhoid fever. One of its characteristic symptoms is a profuse bloody discharge from the bowels, accompanied by ulceration of their mucous surfaces. The bacillus of Shiga attacks exclusively the mucous membrane.

The amebic dysentery is quite different pathogenically from the other variety, though it has its seat in the large intestine. The amebic dysentery is a local infection with a tendency to invade the whole thickness of the wall of the large intestine, where it produces punched-out ulcers with edges undermined. Much confusion has crept into the study of specific dysentery through the two varieties of ameba, morphologically identical, the one being pathogenic, the other not.

Infection with the bacillus of Shiga produces a self-limited disease, which must be combated, like other general infections, by symptomatic treatment in which drugs seem to play a secondary part. So far no specific treatment of the disease has been advanced. The disease has a large mortality, the exact figures of which cannot be given, as the reported series of cases include many catarrhal forms of dysentery, of which the mortality is practically *nil*.

The amebic dysentery is purely local, attacking the large intestine, and is essentially chronic, the prognosis of which is unfavorable from the standpoint of ultimate recovery, as contractures are almost certain to occur. The repeated ulcerations and inflammatory exudate, involving the entire wall of the intestine, produce strictures and deformities which markedly interfere with the functions of the bowel. When the examination of feces becomes a routine practice, it will be found that infections play an important rôle in the dysenteries of the temperate climates, though relatively the disease is much less common than in the tropics. Perhaps the same organisms will be found that are present in the tropical dysenteries, or others may be identified. That the persistent dysenteries are due to specific infections there is now little doubt.

IMPERFECT METHODS IN RECENT MEDICATION.

The expansion of spinal analgesia has led to a renewed study of cocain. It is found that the samples which are upon the market are of varying strength, and that they contain alkaloidal impurities which are probably responsible for the toxic action of the drug. To the surgeon cocain, if so labeled, was thought to be quite as reliable as morphin or quinin, whose long study by the pharmaceutical profession has produced products of great purity.

It is only recently that the whole subject of vaccination has been overhauled. One would think that after more than a century about all that was known regarding this procedure would have been brought to light, but as a matter of fact there are still many unsettled points, though the light which has been thrown upon the general subject of immunity and of bacterial infection in general has rendered vaccination much more efficient.

The antitoxin treatment of diphtheria, which is now generally accepted as being the very best method of treating the disease, is coming in for renewed study. Heretofore, if antitoxin was used about all that seemed to be necessary was that it should be employed at as early a date as possible. The dose did not seem to make very much difference, though it is the custom in England to use a much larger quantity than in this country. It is only of late that mention has been made of the age of the antitoxin as an important element in overcoming the disease. In a recent communication of Barbier and Lobligeois to the Hospital Society of Paris, they referred to cases which were observed in the Hospital Trousseau during January, February, and March of last year. At that time in Paris there was an epidemic of diphtheria of special severity. They noted that the administration of antitoxin simply arrested the progress of the disease, but the patients did not recover. These were described as prolonged diphtheria, in which there was an improvement in the local symptoms but later membranes reappeared. Out of 325 cases 50 were of this prolonged type. The ages varied from 18 months to 6½ years. The doses of antitoxin varied according to the gravity of the case. All of these cases were treated with repeated injections of antitoxin, which invariably caused the membranes to separate. One child received seven injections, after the last of which the membrane reformed, but disappeared under a further small injection. The writers urged the necessity of repeated and large doses of antitoxin if the symptoms of general toxemia persist, if the pulse remain feeble, and there is general weakness. Complications such as bronchitis call for an especially large dose, often repeated.

The foregoing citations show that one should not be contented with the statement that cocain was injected, antitoxin administered, or vaccination performed, but the efficiency with which it is carried out, the dose and the purity of the drug, are important elements. Of course, such a statement as this is a self-evident proposition and one which would be trite if applied to ordinary galenicals, but we have not seen sufficient emphasis placed upon these elements in our newer therapeutic methods.

A REASONING ANTIVIVISECTIONIST.

George F. Angell, president of the Massachusetts Society for the Prevention of Cruelty to Animals, and editor of *Our Dumb Animals*, in a letter to a correspondent on vivisection, puts the question succinctly as follows: "I fear that some of our antivivisection friends from constant thought on one subject have come to believe that a single stone in the superstructure is more important than all the other stones which compose the great cathedral of humanity. The sum total of suffering inflicted upon the animal race in cattle transportation, slaughter-houses, and on the plains in winter, seal fisheries, shooting and wounding millions of birds, and a hundred thousand cruelties inflicted on the horse, dog, cat, cattle, sheep, and swine in other forms than vivisection, is probably more in a single day than the suffering inflicted by vivisection in a year—in other words, in rightly estimating the sum total of suffering to the dumb races, vivisection cannot be fairly said to be more than $\frac{1}{365}$ part of the great total. We do not mean by this to depreciate the cruelty inflicted upon animals in useless vivisection, but we do wish to say that our friends who are giving all their thoughts to this subject, while carefully studying to do their work in most effective ways, which will tend to diminish rather than increase the practice, should never forget that their work is only one stone of the great cathedral, while human education is the foundation upon which every stone must stand or fall."

THE MICROORGANISM FOUND IN THE BLOOD PLASMA OF SYPHILITICS.

M. Jullien recently reported to the Paris Academy of Medicine upon the round, granular, highly refracting bodies which have been seen by him and by other observers in the blood of syphilitic patients who had been recently infected. The attempt to cultivate

these bodies directly from the blood or to inoculate it has invariably failed, a result which has been attributed to the fact that coagulated blood is strongly bactericidal. Recently he has isolated identical bodies from the serum of a blister. It is stated that the serum of a blister contains none of the alexin, which is said to be the bactericidal agent in coagulated blood. The organism from the serum is said to have the general shape of a bacillus, and shows intermediate stages between that of a slender rod and a filament. The organism stains readily by the usual reagents, but not by Gram's method. It causes a turbidity in bouillon, and forms a thick growth upon its surface in from four to five days. It liquefies gelatin and grows well on glycerin; also on potato, amniotic fluid, gelose, and solidified serum. As the culture ages the appearance of the germ alters, so that nothing is observed but the granules which are found in the blood of syphilitic patients. If the organisms are injected into the peritoneal cavity of a guinea-pig, there result paralysis and death in from ten to fifteen days. Subcutaneous inoculation produces an indurated area which later ulcerates with a swelling of the glands in the vicinity. The blood is always found to be sterile. The writers base their view of the specificity of this organism on the fact that it is agglutinated by the serum of patients suffering from syphilis, and that the agglutination does not occur with serum of healthy patients; and secondly, to the property which it has of being acted upon by the alexin contained in the serum of animals which have been inoculated with syphilitic poison.

YOHIMBIN WORTHLESS AS AN APHRODISIAC.

We recently referred to an article which appeared in the *Therapeutische Monatshefte* from the pen of Mendel introducing this drug as a reliable aphrodisiac. It is derived from a Central African shrub, and the yohimbin hydrochloride which has been prepared is a very expensive substance, costing about three hundred and fifty dollars an ounce. Six grains can be obtained for about five dollars, and as the dose is comparatively small it is not beyond the reach of the wealthy class of patients, but we feel that the poor will have to content themselves with a less expensive aphrodisiac. The communication of Mendel was commented upon by Bartholow in this country, and while his experience with the drug was limited it seemed on the whole favorable. Recently *Merck's Archives* quoted an article by Kravkoff, of St. Petersburg, who has been making some physiologic and therapeutic studies of the drug. All tests showed that

the drug possessed decided tonic effects, but had no aphrodisiac action. The congestion of the sexual organs caused by the drug is not due to the specific action of the yohimbin, but to its general vasodilating effect. If given to roosters, the combs are seen to become congested. The drug has a powerful effect in reducing the body temperature, its action in this respect being more marked than the salicylates or antipyrin. The drug was given to six physicians, some of whom suffered from functional impotence due to neurasthenia; the others were perfectly well. The yohimbin was taken in the usual dose, viz., one-twelfth grain, either in the form of solution or tablets. Not only were the results negative so far as an aphrodisiac action was concerned, but nausea, salivation, irritability, and congestion of the conjunctivæ were marked.

ROCKEFELLER'S GIFT TO MEDICAL RESEARCH.

The medical press is now commenting upon the gift of $200,000 made by Mr. Rockefeller for medical research. To our mind this is one of the most important departures in the endowment of science that has yet been made. The prize essay, the best paper, and the endowed lecture have been exploited to their full limits. Many institutions have been founded that have a specific scope either educational or scientific, though usually the former. That science shall grow it is necessary that we have schools, laboratories, publications, and libraries—these all being means to one end, namely, the advancement of science. None of them can be done without. A distinct hiatus in the scheme of research has been filled by the gift of Mr. Rockefeller, this being the first endowment, so far as we know, apart from teaching or without assignment to a specific purpose. Mr. Rockefeller proposes to give ten thousand dollars a year for twenty years. No portion of the money is to be invested in buildings, but it is to be devoted solely to sustaining original research in laboratories and other places where it can be conducted largely under the immediate supervision of teachers, and under the general direction of the trustees for the management of the fund.

ABSTRACTS.

MEDICINE.

Complete Insalivation of the Food an Essential in Digestion.—

E. H. Van Someren read a paper before the Section of Anatomy and Physiology of the British Medical Association, which according to *The Lancet* of August 10, 1901, "proved of such interest that the discussion was continued beyond the usual time." The writer entitles his paper, "Was Luigi Cornaro Right?" The subject of the thesis lived from 1467 to 1566. He was a Venetian nobleman, famous for his treatises on a temperate life. In his youth he lived freely, but after a severe illness, at the age of 40, he began under medical advice gradually to reduce his diet. For some time he restricted himself to a daily allowance of twelve ounces of solid food and fourteen ounces of wine. Later in life he still further reduced his bill of fare, when he found that he could support his strength on a single egg a day, being all the solid food of which he partook. So much did he become accustomed to this simple diet that when he was above 70 years of age the addition of two ounces of solid food to his daily diet nearly proved fatal. His first work on "A Sure and Certain Method of Obtaining a Long and Healthful Life" was followed by three others on the same subject, composed at the ages of 86, 91, and 95. Addison, in the *Spectator*, No. 195, speaks of these books as being written with such a spirit of cheerfulness, religion, and good sense as are the natural concomitants of temperance and sobriety. Cornaro died at the age of 98. Some place his age at 103.

Van Someren gives a graphic description of the average treatment of gout, rheumatism, dyspepsia, and allied disorders. Such cases are carefully investigated, and a bottle of medicine prescribed with an appropriate diet. The patient returns somewhat better and commonly remains so until the treatment is abandoned, when he relapses and returns to his ordinary habits. If there is no improvement the treatment is given again and again, when he is perhaps sent to a consultant. Finally the unfortunate gets used to his suffering, and he joins the innumerable hosts that wander from one "Bad" to another, all Europe over, trying, praising, and damning each in turn. Their manner of living is of course at fault. Nature never intended that man should be perpetually on a special diet,

hugging a bottle of medicine; nor did she ordain that he should go wandering over Europe, drinking purgative and other waters.

The point made by the writer is that there is a pharyngeal reflex that will tell one how much food he ought to eat. He claims that this natural reflex is in abeyance, due to habits of hurried mastication, and that consequently a larger quantity of food is consumed than is needed. An instructive table is given containing a *résumé* of two experiments, in each of which a state of nutritive equilibrium was maintained by individuals of about the same weight, on widely different quantities of food, but the same in quality. The subjects of the experiments were a laboratory assistant of the United States Department of Agriculture and the writer.

	Dr. Snyder's experiment. Published in Bulletin 43.	Writer's experiment.
Age of subject	22 years.	30 years.
Duration of experiment	4⅓ days.	5 days.
Number of meals	13	10
Weight at beginning	62.5 kilos.	57.3 kilos.
Weight at end	62.6 kilos.	57 5 kilos.
Potatoes (daily average)	1587.6 grammes.	159.4 grammes.
Eggs	411.08 grammes.	124 7 grammes.
Milk	710 Cc.	710 Cc.
Cream	237 Cc.	237 Cc.
Daily urine	1108 grammes.	1098 grammes.
Daily feces	204 grammes.	18.9 grammes.

The daily diet of Dr. Snyder's subject consisted of 3½ pounds of potatoes, eight eggs, 1½ pints of milk, and half a pint of cream; the writer's diet consisted of three eggs, and the remainder of the twelve ounces in potatoes and an equal quantity of the same liquid food to that taken by Dr. Snyder's subject. The exercise of the laboratory assistant comprised his daily routine of laboratory work, while that of the writer consisted of six sets of tennis or 1½ hours on horseback, with from an hour to an hour and a half's walk or climb daily, in addition to much reading and writing. In each case complete nutritive equilibrium was maintained, although the writer subsisted on $\frac{3}{17}$ of the solid food taken by the other subject.

The writer claims that a better assimilation is reached because of more perfect mastication. The solid food is masticated until its taste entirely disappears. His attention was first called by Mr. Horace Fletcher to the presence of an inability to swallow and a closing of the throat against food unless it had been completely masticated. Mr. Fletcher noticed this peculiarity after he had begun to excessively insalivate his food, both liquid and solid, until

all the original taste had been removed from it. Any unmasticated residue in the mouth, being refused by the fauces, required a forced muscular effort to swallow. Since adopting this method of mastication he has recovered from two maladies, adjudged chronic, which rendered him ineligible for life insurance. His weight has fallen from 205 pounds to 165. He has practiced no abstemiousness, has indulged his appetite both as to selection and quality without restraint, and for the last three years has enjoyed perfect health.

These observations led the writer to regard the manner of taking food as having something to do with its effects upon the system. Adopting the same method of eating he found at the end of six weeks that not only did the fauces refuse to allow the passage of imperfectly salivated food, but that such food was returned from the back to the front of the mouth by an involuntary but controllable muscular effort. The shortest time in which he has known one to acquire this reflex was four weeks. It is only gotten by the most persistent and painstaking voluntary effort.

A General View of Dementia Precox.—

Albert E. Brownrigg, in the *American Journal of Insanity* for July, 1901, says that under this term is gathered together a series of clinical pictures, the most common characteristic of which is the termination in a peculiar weakened state of the mind. It is probable in a majority of cases that there is partial degeneration of the brain cortex. Of the underlying pathology we have little knowledge. He divides dementia precox into three closely related types —hebephrenic, katatonic, and paranoid. Notwithstanding the diversity of the clinical picture, there are certain fundamental derangements more or less pronounced in all cases.

As a rule the perception of external impressions suffers no serious impairment, excepting where it is impaired by delusions or where the patients are stuporous. While apparently stupid they observe carefully and closely their surroundings. Hallucinations are usually present. Occasionally the subjective phenomena are disagreeable, but they sometimes look upon the hallucinations as artificial exhibitions produced for their amusement. Consciousness in many instances remains intact, excepting in the severer cases, but the power of attention is greatly impaired. Above everything else these patients show a total lack of interest or desire to concern themselves with their surroundings. While they perceive what happens about them, they take no notice; in cases in which the stupor is marked, or those with advanced mental weakness, it may

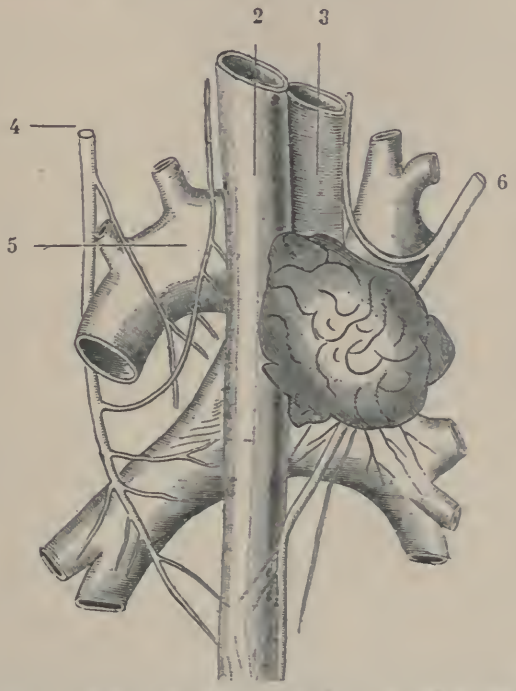
be impossible to arouse their attention. Memory is relatively little impaired; often their school knowledge is retained with remarkable vividness, and the ability to remember passing events is often good. In every case judgment is greatly deteriorated. There frequently arise transitory or continuous delusions, which in the early cases are usually hypochondriacal, but later may present the grandeur type. At last these delusions become senseless and fantastic, corresponding with the developing mental weakness. There is a striking disturbance of the disposition, and the alteration in conduct and action is such as to give the clinical picture a curious stamp. The will-power seems to be completely in abeyance. They lose all inclination for activity, sit idly, and neglect obligations, but still may be in a position to act upon suggestions from others in au orderly manner. Stereotyped movements and attitudes and an easy adaptability to the monotonous daily routine of the institution are general. The ability to work is without exception impaired; they need constant urging and hesitate before every little difficulty, and cannot accommodate themselves to altered circumstances.

On the physical side the tendon reflexes are exaggerated, and there is increased mechanical excitability of the muscles. The pupils are frequently dilated, and vasomotor disturbances are often marked. The saliva is sometimes increased, and the body temperature is usually subnormal. In women menstruation is usually absent or irregular. The thyroid gland is in some instances enlarged, the eyeballs prominent, and there is tremor. Anemia, glycosuria, and polyuria have been noted. The appetite is diminished, but may be excessive. The body weight usually diminishes, even to extreme emaciation, in spite of a generous diet.

A detailed description of the wide domain of dementia precox presents difficulty in classifying the various forms on a strictly scientific basis. The grouping attempted above has no other value than that of being easily understood.

Bradycardia Due to Compression of the Right Pneumogastric Nerve.—T. Masoin, in the *Bulletin de l'Académie Royale de Médecine de Belgique* for May, 1901, publishes a physiologically interesting observation. The patient was first taken with persistent vomiting. Each effort to swallow was followed by the immediate expulsion of the liquid. The absence of fever or other symptoms led to the view that the patient was suffering from a spasm of the esophagus or a stoppage due to a foreign body. The patient was an imbecile of poor physical development, who could give no history of his condition. The pulse was from 40 to 45. Percussion and auscultation

revealed nothing abnormal, with the possible exception of a diminution in both the first and second sounds of the heart. The examination of the urine was negative. Rectal alimentation was instituted, but the patient succumbed five weeks after the beginning of the trouble of progressive inanition.



1, Recurrent nerve; 2, esophagus; 3, trachea; 4, left pneumogastric; 5, aorta; 6, right pneumogastric.

The post-mortem examination showed a small tumor of a cancerous nature in the stomach. The diaphragm was invaded by metastatic carcinoma. The heart was normal. A tumor was situated two centimeters above the division of the bronchus and pressed upon the pneumogastric nerve below where the recurrent is given off. The writer attributes the slow pulse to direct pressure upon the nerve, as there was no special disease of the heart, uremia, or other cause to account for it. The microscopic examination of the nerve showed no alteration in its anatomical elements. There was no special alteration of respiration. This corresponds with Quincke's observations that the compression of the pneumogastric nerve in man causes a slowing of the pulse but no modification in the rate of respiration. Bradycardia of peripheral origin due to functional or anatomical alteration in the pneumogastric is rare.

Latent Pulmonary Tuberculosis.—

Charles R. Upson, in the *Medical Record* of July 20, 1901, uses the term latent to indicate the unsuspected presence of pulmonary tuberculosis. He gives a summary of 197 cases of patients who consulted for diseases of the nose, ear, and throat, in whom tuberculosis was found. None of the patients had previously been examined for lung trouble, and all in whom cough was a prominent symptom were excluded. In a number of the cases the patient had consulted a physician regarding ill feelings, but in no case had examination of the lungs been made.

In these cases the family and personal histories were good in 145. In 99 cases the home environment was satisfactory, and in 78 the patients had lived or worked with consumptives.

On inspection, there was little in the appearance in 50 of the cases to call attention to the existence of lung disease. In 125 the eyes were notably brilliant, the pupils were dilated, and in 20 they were unequal. There was pallor in 63 cases. Unequal chest expansion was noticeable in many patients in whom but one lung was involved. In 48 cases the percussion note was duller than normal. The respiratory murmur in 142 cases was lowered in intensity; in 29 it was increased and pitched higher. In 116 cases, in some of which it was difficult to detect dulness, there was in the posterior apical region a noticeable transmission of the heart sounds. Prolonged tubular breathing and fine râles were noted in 115 cases.

The temperature in 118 cases ranged from 0.8° to 1.6° above normal. In 38 cases in which the temperature was normal, exercise to the point of fatigue caused a rise from 0.9° to 1.9°, leaving but 41 in which the temperature was normal under all conditions. When possible, the afternoon temperature was taken daily for a considerable period, after the completion of the digestive process. A subnormal morning temperature was found in 17 cases. The respiratory movements and pulse were increased in 105 cases, exclusive of the 33 in which there was a rise of temperature following fatigue.

In 125 cases the appetite was more or less impaired or capricious; in 95 the digestion and assimilation was imperfect and accompanied by a loss of from three to thirteen pounds in weight. In 132 cases there was an increased sense of fatigue following mental or physical exertion. This was noticeable in the early morning hours, notwithstanding a good night's sleep. Slight cough or hacking on assuming a reclining posture or on rising in the morning was present in 130 cases, but there was little or no expectoration. Shortness of breath on exertion had been noted in 165 instances. In several cases the

dyspnea was out of proportion to the lung disease; 12 of the patients admitted having raised blood. Pleuritic pains of varying intensity had been present in 90 cases. In but 26 cases had night sweats been a prominent symptom; in 4 the night sweats occurred in patients showing the fewest physical signs. In 72 instances the patients noted occasional night sweats, in many, however, so slight as hardly to attract attention.

Intestinal indigestion was present in 95 cases, accompanied by occasional attacks of diarrhea in 38. In 53 cases there was constipation. A coated tongue was present in 106, and more or less headache was complained of in some of the cases. Many of the patients believed their general ill feelings to be due either to chills, dyspepsia, or malaria, the latter being the favorite self-diagnosis.

It is generally estimated that not one in fifteen cases of tuberculosis is diagnosticated in an early stage; he would place the number much higher, as he believes that a large proportion of the population have been infected with pulmonary tuberculosis in whom the disease is, to a large extent, latent.

The Zoological Distribution of Tuberculosis.—

Woods Hutchinson, in the *Medical Record* of August 24, 1901, has utilized the material of the London Zoological Gardens in reference to the susceptibility of tuberculosis under varying conditions in different species of animals. One of the interesting points brought out is in the effect of diet upon monkeys. Of the thirty-five deaths occurring during six months among the vegetarian monkeys, no less than seventeen were due to tuberculosis; while not one of ten deaths among the carnivorous monkeys was due to this cause. It is the experience of keepers that anthropoid apes can only be kept alive for a short time if they are not given animal food. This observation upon animals in captivity confirms the clinical experience with the highly nitrogenous diet which is found most useful in sanatoria for tuberculosis.

The food effect can only explain a part of the divergencies noted in the susceptibility to tuberculosis of the several families, for certain of the herbivora have almost as complete immunity as the carnivora. The writer is of the opinion that the method of life of the carnivora, involving as it does a higher degree of activity, has something to do with their relative immunity.

In man it has been suggested by more than one authority that the size and vigor of the heart is an important element in the predisposition to tuberculosis. A study of the multifarious phenomena

in animal and human tuberculosis leads the writer to the conclusion that it is a matter of vigor and endurance in the resisting power rather than of race, food, or exposure to infection, as these powers are usually higher in flesh eaters than in vegetable eaters. The former possess a marked relative immunity.

The Intradermic Method of Vaccination.—

Louis Leory, in the *Journal of the American Medical Association* of August 3, 1901, says he has long been convinced that glycerinated lymph is by far the best method of inducing the vaccine disease. One objection to it is that it is viscid, takes a long time to dry, and when exposed on the surface is liable to be contaminated by foreign substances, which readily adhere to it. To obviate this he employs the hypodermic needle, introducing the vaccine underneath the skin. He first employed this method in Philadelphia in 1895. A solid-piston hypodermic syringe is used, and if a large number of vaccinations are to be performed, the barrel of the needle may be filled with the glycerinated lymph. A short and rather large caliber needle is most satisfactory. The skin is cleansed in the usual way and a drop of the lymph injected with the concave surface of the needle downward. In this way the lymph is forced between the epithelial cells and diffused in exactly the locality desired. As a rule a single drop is sufficient, though a larger quantity is not harmful. The advantages of the intradermic method are claimed to be freedom from contamination, absence of pain (an advantage in young children), and simplicity of application. The number of successful results is greater than where simple scarifying is used. It is believed that by increasing the amount injected a higher degree of immunity can be secured.

Delirium Grave.—

M. Sander, in *Archiv für Psychiatrie und Nervenkrankheiten*, Band 34, Heft 2, has made a bacteriological study of three cases of this disease. By most Germans delirium grave is spoken of as delirium acutum, which corresponds to the typhomania of Bell. All of these cases tend toward a fatal termination, and they are all accompanied by marked microscopical, and in most cases macroscopical, changes in the cerebral cortex. The conclusions of Sander are to the effect that in acute delirium we have a general infection with a staphylococcus; at least, this organism was found in two of his cases, while in another a pneumococcus was found. In some cases the bacterium coli may play a rôle in the infection. Clinically,

these cases are accompanied by fever, with high temperature from the beginning of the disease. The post-mortem examination always reveals hyperemia of the brain, enlargement of the spleen, and changes in the ganglion cells, mostly in an advanced state. The brain generally is in a condition of hyperemia, and the leucocytes have largely escaped from the vessels. In some cases colonies of bacteria were found in the brain. The severe symptoms in acute delirium seem to be due to the breaking into the circulation of masses of bacteria, and the acute delirium may occur in the course of any infection; hence acute fatal delirium cannot be regarded as a specific disease.

Comparative Virulence of Human and Bovine Tubercle Bacilli.—

Mazyck P. Ravenel, in *The Lancet* of August 17, 1901, concludes an exhaustive experimental study made at the laboratory of the State Live Stock Sanitary Board of Pennsylvania. He concludes that the tubercle bacilli from bovine sources have in culture fairly constant and persistent peculiarities of growth and morphology, by which it may be tentatively differentiated from that ordinarily found in man. Cultures from the two sources differ markedly in pathogenic power, affording a further means of differentiation. The bovine bacillus is much more active than the human, as is its virulence for all species of experimental animals tested, with the possible exception of swine, which were highly susceptible to both. Tuberculous material from cattle and from man corresponds closely in comparative pathogenic power to pure cultures of tubercle bacilli from the two sources for all animals tested. It is a fair assumption from the evidence at hand, and in the absence of evidence to the contrary, that bovine tubercle bacillus is highly pathogenic for man, especially so in the early years of life.

[This article, coming as it does after Professor Koch's announcement, should attract wide attention. The writer cites three cases in which the tubercle bacillus was directly inoculated from cattle to human beings.]

Granular Degeneration of the Erythrocytes in Lead Poisoning.—

O. Moritz, in the *St. Petersburger Medicinische Wochenschrift* of July 13, 1901, says that in lead poisoning basophilic granules are found in the red cells. On animals it has been shown that the changes in the erythrocytes persist for a long time after the administration of the lead has ceased. Hamel has shown that in men with lead intoxication basophilic granules occurred in twenty-three out

of twenty-five cases. The writer has examined the blood of a number of individuals employed in occupations that exposed them to lead, and has found granular degeneration of the red cells in most of them. In comparatively few had there been any of the clinical evidences of lead poisoning. Five cases had had neuralgia and pain in the abdomen and head, and muscular soreness; and one, at the time of examination, was suffering from the distinct signs of lead paralysis. The remaining twenty-six out of the thirty-two presented not the slightest trace of lead poisoning. In only five of the cases was the granular degeneration of the red cells absent. The extent of the degeneration in the cells bore some relation to the length of time that the workers had been employed. The conclusion of the writer is that we have in the degeneration of the red cells an early symptom of lead poisoning, and its degree marks to some extent the intensity of the intoxication.

A New Method of Determining the Amount of Hydrochloric Acid in the Gastric Contents.—

Max Einhorn, in the *Medical News* of July 20, 1901, says that Gunzburg's test is complicated and lengthy, particularly as the same procedure is repeated after each dilution. He has substituted for this test filter-paper saturated with a solution of dimethyl-amido-azobenzol. A minute portion of the stomach contents is placed by means of a glass rod upon the paper. If it turns red, one drop of the contents is diluted with two drops of water in a small porcelain dish. A glass rod is dipped into the mixture, and if the test paper again turns red, one or two more drops of water are added and the procedure is repeated. This is done until a slightly red or almost no red color is produced. The amount of dilution which gives the slightest perceptible reaction with the test paper is determined. In the first test, if there is a failure to react with the solution, the absence of hydrochloric acid is self-evident. Approximate accuracy is secured by the method, which has the merit of being rapid. A dilution of from three to six times corresponds to a normal amount of hydrochloric acid; under three, to subnormal acidity; and over six, to hyperacidity.

Chronic Fluorine Poisoning.—

Fritz Schwyzer, in the *New York Medical Journal* of July 6, 1901, gives an exhaustive clinical study of a case which he believed suffered from chronic fluorine poisoning. The compounds of fluorine have of late been recommended in the preservation of foodstuffs.

The patient was a journalist 28 years of age, who consumed large quantities of bottled beer. During the winter of 1900–01 he suffered several attacks of thrombosis of the superficial veins of the leg. The clinical observation of the patient showed a uninuclear leucocytosis, increased excretion of lime in the feces and urine, general pain in the bones as in osteomalacia, and increased coagulability of the blood with a tendency to thrombosis. These, when associated with the presence of fluorine in the urine, the writer regards as sufficient to establish a diagnosis of fluorine poisoning. The source of it in this case was determined to be the bottled beer which the patient drank in considerable quantities, usually from eight to ten bottles in twenty-four hours.

Fluorine has a cumulative action under certain conditions; in small doses it is a relatively harmless preservative agent, but as soon as it accumulates in the body it becomes dangerous, and such storing up in the system is favored by the habitual use of a food contaminated by this substance.

Relation of Indicanuria and Oxaluria to Gastrointestinal Fermentation.—

J. A. Wesener, in the *Chicago Medical Recorder* for July, 1901, says that traces of oxalic acid are found normally in the urine. It is taken in with the food. Some foods contain large amounts of oxalates, and if these are excluded and oxalate crystals are found abundantly in the urine, the fact is indicative of gastrointestinal fermentation. An increase in the oxalate crystals alone does not signify a high acid percentage, as there may be oxalate of lime in solution.

Indican is often but not necessarily associated with oxalate crystals. The symptoms which are noted with an increase in the oxalic acid and indican are not caused by these substances, but are due to products formed in the process of fermentation. The investigation of these two substances furnishes a rich field for study, as they point to the formation of various poisonous bodies in the intestine. It is probable that along these lines may be found a solution of the pathological conditions underlying rheumatism, gout, and nephritis.

Frequency of Typhoid Bacilli in the Blood.—

R. I. Cole, in the *Bulletin of the Johns Hopkins Hospital* for July, 1901, gives a study of fifteen cases in which cultures were made from the blood in typhoid fever. In eleven the typhoid bacillus was

found. In the last seven of the cases, in which a greater dilution of the blood was employed, the bacillus was found every time. Severe and moderate cases were included in the series. In three of the cases in which the organism was isolated the attacks were very light. In one of the negative cases, in which cultures were made on two occasions, the course was prolonged and of great severity. In another severe case, in which three cultures were made, no typhoid bacilli were found. This patient was pregnant, and aborted on the twelfth day; the typhoid bacillus was found in the blood of the fetus, and the patient's urine contained typhoid bacilli. Positive results were obtained at various stages of the disease, most of them during the second week, the earliest on the sixth day, and the latest on the twenty-seventh. The results show that typhoid bacilli occur in the blood in greater frequency and during a much longer time than was formerly supposed.

Primary Sarcoma of the Thyroid Gland.—

A. J. Lartigau, in the *American Journal of the Medical Sciences* for August, 1901, says that primary sarcoma of the thyroid gland is rare, but is possibly more frequent than statistics show. It is less frequent than primary carcinoma of the thyroid. It is commonly associated with goitre, and those persons in whom it develops who are between 40 and 60 years of age show a higher percentage of previous goitre than younger individuals. The greatest frequency of sarcoma is between 40 and 60 years of age, and it is most common in women. The primary tumor frequently originates in the right lobe, and the clinical course of the disease is relatively acute. Pressure upon the trachea and larynx is common, and metastasis occurs early through the blood and lymph channels.

Ameba Enteritis in St. Petersburg.—

W. Kernig and A. Ucke, in the *St. Petersburger Medicinische Wochenschrift* of July 6 and 13, 1901, describe an acute febrile disease in which amebæ were recognized in the intestinal discharges. The first of these cases was seen in September, 1899, and since then in five other cases the ameba has been found. The writers claim that there are two species of ameba coli, which morphologically cannot be distinguished. The one is pathological for man and cats, the other not. All of the six cases which they observed had the character of an acute dysentery with tenesmus, and frequent stools containing mucus and blood. They are of the opinion that in St. Petersburg the amebic dysentery is by no means rare.

The Diazo-reaction in Typhoid Fever.—

M. E. Sacquepee (*Archives Générales de Médecine*, August, 1901) has carefully studied the diazo-reaction in twenty-four cases of typhoid fever throughout the entire course of the disease. A number of tables are given showing the relation of the diazo-reaction to the bodily temperature. The writer comes to the conclusion that the diazo-reaction is nearly constant in typhoid fever, appearing commonly several days before the highest temperature is reached. The distinctness of the reaction follows the temperature curve. Commonly the disappearance of the reaction is followed by a fall in temperature, if there are no complications. If it disappears abruptly and early, it is a bad prognostic sign; likewise its persistence after the temperature has fallen, often pointing to a complication.

SURGERY.

The Management of an Omental Hernia.—

W. H. Bennett, in the *Clinical Journal* of August 7, 1901, says that irreducible omental hernias are very common. He describes the case of a laborer 55 years of age, with a very large inguinal hernia on the right side which extended half-way down the thigh. It was irreducible. The case was apparently unfavorable for a radical cure; at the same time no truss or other appliance was of any service. At the operation there was found in the sac an enormous mass of omentum, more than half a pound in weight, in addition to which there was several feet of small intestine. The omentum in the sac was really the whole of that organ greatly increased in bulk from overgrowth. The transverse colon had been pulled into the sac with the omentum. In this case the omentum was ligated proximally to the hypertrophied portion as the structure lay in the sac. A number of silk ligatures were applied, so that after the removal of the ligatured mass four considerable stumps were left which were returned into the abdominal cavity. Nothing could have been more satisfactory than the subsequent progress of the patient. The wound healed immediately; the bowels acted on the third or fourth day, and everything seemed to be going on perfectly. On the fourteenth day after the operation, the action of the bowels being regular and free, without warning of any kind he suddenly had an attack of acute pain in the abdomen and vomited profusely. The vomiting recurred several times; the

pain became more intense and the abdomen swollen. In addition there was great difficulty in getting the bowels to act. In fact, all the cardinal symptoms of intestinal obstruction came on. Notwithstanding the threatening nature of the symptoms it was concluded that no further operative interference was necessary. With a little perseverance the bowels were moved, and while the vomiting recurred at intervals for several days, by degrees the pain subsided and the distention went down.

The writer remarks that such symptoms are very common after large masses of omentum have been removed. They usually occur either very soon after operation, within the first thirty-six hours, or from the tenth to the fourteenth day subsequent to the operation.

The second case was that of a man 28 years of age, with an inguinal hernia of small size which contained omentum. To remove this it was pulled down out of the abdomen until a healthy unaltered portion was reached, around which the ligatures were applied. The operation was completed in the ordinary way. The next morning he was very ill, had a temperature of 102°, the abdomen was distended, and he was in acute pain. The symptoms were strongly suggestive of peritonitis. The bowels were opened by enemata and repeated small doses of salines given. In thirty-six hours the symptoms subsided, and convalescence progressed smoothly.

In both these cases a ligature was applied to the healthy omentum, and the altered portion was cut away on the distal side of the ligatures. That neither case excited any anxiety notwithstanding the severity of the symptoms was due to the fact that the omentum was alone involved. Had the intestine been strangulated or been interfered with, an abdominal exploration would have been indicated.

As a general rule the secondary symptoms of omental hernias may be left to themselves, but occasionally they may have a serious outcome. In all cases, whether the omentum be altered or not, a sufficient interval must be left between the ligature and the bowel. If the stump must be ligated near the intestine harm may result. From one-half to one inch must be left even if the ligatures are placed through altered structures.

A case of this kind was that of a man 26 years old with a moderate-sized omental hernia. The omentum contained in the sac was very brittle, and the ligature cut its way directly through. Free bleeding followed the division of the vessels. In this case it was necessary to ligate the omentum less than half an inch from the intestine. The patient did very well for two or three days. The temperature first became subnormal and then rose to 104°. A

diagnosis of gangrene of the bowel was made, but the condition of the patient was such as to preclude operation.

In the management of the omentum in which its removal is necessary the ligature should always be large, whether silk, catgut, or kangaroo tendon. The omentum even when healthy is easily cut through by a ligature, and when altered and hypertrophied it is exceedingly friable. The vessels sometimes become canalized, resembling those of the liver. If a piece of thin silk or other substance is tied tightly around such a tissue it may quickly cut through the thin-walled gaping vessels, thus leading to an abdominal hemorrhage, which may result in the death of the patient before anything can be done.

In the treatment of the secondary symptoms which follow the removal of portions of omentum, the bowels should be freely moved by enema if there is vomiting; but if the patient can retain the drug, castor oil should be given with fifteen drops of tincture of opium. The crucial point in the treatment of all abdominal conditions is to avoid intestinal distention, and its early signs should never be ignored. Vomiting without distention is of little moment; if associated with distention the vomiting ceases immediately when the distention is relieved. If the distention progresses beyond a certain point, paresis of the intestine follows.

The Treatment of Thrombosed Varicose Veins of the Leg.—

C. Mansell Moullin discusses in the *Clinical Journal* of July 31, 1901, the treatment of thrombosis of superficial varicose veins. This condition is especially frequent in that part of the internal saphena at the side of the knee and in the lower third of the thigh. The condition is a grave one because of the liability of a portion of the thrombus separating and reaching the heart. The diagnosis of this condition is easy; the soft purplish masses along the course of the veins, standing out underneath the skin and more or less adherent to it, cannot be mistaken. There is always inflammation around a thrombosed vein, and secondarily a certain amount of tenderness and redness of the skin and swelling of the surrounding cellular tissue. It is advisable before coming to a decision as to the method of procedure to carefully note how this superficial inflammation spreads. Now and again the inflammation of the cellular tissue involves the walls of the vein, and a phlebitis is secondary to the infective inflammation of the surrounding tissues. These cases must be carefully distinguished from those in which the primary trouble is a thrombosis and the inflammation to it secondary and comparatively slight.

The causes which give rise to thrombosis in veins vary in individual cases. In most cases the thrombosis starts from a dilatation in which presumably the blood is almost stagnant, or from behind a valve. Impaired vitality of the endothelial lining of the vein is another cause. Sometimes this may arise from prolonged stasis, the nutrition of the lining cells growing more and more feeble until at last some fibrin ferment is set free. More frequently the cause is traumatic—a blow or the compression of a bandage. The third cause of thrombosis, more difficult to estimate, is the difference in the constitution of the blood. In a recent case on which the writer operated, the thrombus extended from below the knee to the saphenous opening, a condition which could not have arisen from a local cause. What this alteration in the constitution of the blood may be it is not easy to say. It occurs in such wasting diseases as phthisis, and is not infrequent in typhoid. It sometimes occurs after severe surgical operations which pursue a perfectly aseptic course. After severe abdominal operations it is well to raise the foot of the bed from nine to twelve inches to prevent venous stasis in the lower extremities. It is possible that these cases may be of bacterial origin, the germs having been taken in during operation, but not being sufficiently numerous to cause a general reaction in the system, but only a disturbance in the blood which is nearly stagnant. Such a condition has been experimentally proved in animals.

The routine treatment of thrombosed veins is to enforce absolute quiet of the affected limb, covering it with lead lotion or extract of belladonna, and wait until all pain and tenderness have gone, and the vein has either regained its natural condition or feels hard and cord-like. In the meanwhile the patient is liable to sudden embolism, which may occur at any moment, and to extension of the thrombus until it has spread through the saphenous opening into the femoral vein, or, what is nearly as serious, until it extends through some of the communicating branches into the deep veins. Such prolonged treatment is unsatisfactory, as it may take weeks or even months for a blood-clot to become organized and obliterate the vein. Surgical treatment should be undertaken early. All that is necessary is to make an incision down upon the vein, turn out the thrombus, and ligate it above and below. In most cases it is wise to put a ligature around the vein immediately below the saphenous opening, to prevent the clot, if it is accidentally displaced during the operation, being carried into the general circulation. Where the thrombus is so long that it cannot be removed entire, segments should be taken away and the divided ends of the vein closed by

ligature, or better still by torsion. In some cases where there is a large mass on the inner side of the thigh and the wall of the vein is more or less adherent to the surrounding structures, a flap of skin is removed and the mass of veins slit in every direction. The clot is turned out, and so much of the wall as can be readily removed is taken away, the skin afterward being replaced.

In cases involving the superficial veins nothing better than these methods of operating can be employed. The redness of the skin, tenderness, and all other signs of inflammation disappear at once, and union takes place within a week. In a fortnight the patient is up and about. Unfortunately, in thrombosis of the deep vessels operation is out of the question; nothing but unlimited time and patience are of service.

A Study of Burns.—

Frederick Griffith, in the *Medical News* of August 24, 1901, says that burns, which are the commonest of all injuries, should be treated upon accepted surgical principles. They may be divided into two classes: the first, which involves the skin only, and a second group including the deeper structures. Early death and internal complications after burns are due to the direct action of the heat, causing fragmentation and vital changes in the blood-corpuscles. The constitutional disturbance is probably due to infection originating in the burned area. Contraction in burns and subsequent deformity is determined by the granulations. The greater the friction, from whatever source, the more extensive the granulations, followed by a larger amount of connective tissue, and hence greater contraction. The early methods of treating burns had for their basis the prevention of irritation and the excessive formation of connective tissue.

In the early treatment of a burn all dead and charred tissue should be removed as far as possible. The thoroughness with which this is done determines in great measure the amount of discharge and the probable presence of infecting organisms. The best antiseptic for immediate application is hydrogen dioxide. After the wound is cleansed, rubber tissue should be placed over it to prevent contact with absorbent dressings. Splints should be employed to secure relaxation and retention in obtaining rest for the burned part. This is quite as important as it is in fractures. The internal treatment of burns should be by stimulation until reaction from shock has taken place, when the treatment should be supportive.

Otto L. Muench (*ibid.*) recommends carbolic acid in the treat-

ment of burns. He has employed it in several cases, in one of which the amount of surface involved was considerable. The application of pure carbolic acid is followed by an immediate cessation of pain and a prompt and rapid healing of the part. The carbolic acid is applied, using the ordinary 95-per-cent, and is immediately washed away with alcohol. Not only does it give instant relief from pain, but it effectually antiseptisizes the surface of the burn and seals all the avenues of infection.

A Case Simulating Appendicitis.—

The number of abdominal sections that have been made for appendicitis in which the appendix has been found perfectly normal is so considerable that any case bearing directly upon the diagnosis of this condition is of interest.

Herbert Lund, in *The Lancet* of August 10, 1901, reports the case of a man 24 years of age, admitted to hospital, suffering chiefly from pain confined to the region of the appendix, accompanied with constipation. He had fairly good health until 1896, when he suffered from typhoid fever, and about eight weeks after convalescence had pain in the right lumbar region, which extended into the hip and groin of the same side. The pain was accompanied by swelling in the right iliac region, tenderness on pressure, and constipation. The symptoms were relieved by enemata, rest in bed, and careful diet. Attacks of this kind recurred about every three months until Christmas, 1899, when the intervals became shorter and the condition was more persistent. During a particularly severe attack there had been vomiting, but never any trouble with the bladder, nor other urinary symptoms. The patient had been treated at the time the diagnosis of appendicitis had been made, though it was believed that the latter did not account for all the symptoms in the case. On opening the abdomen no evidence of previous appendicitis was apparent. The appendix was removed and the wound closed. The patient made a good recovery, but suffered from constipation. At the end of five weeks vomiting set in and became stercoraceous. The abdomen was opened in the median line, and although the stump of the appendix was free, the cæcum was so closely adherent to the peritoneal surface of the first operation wound that the adhesions had to be severed. When the ascending colon was examined it was found contracted to a size less than half that of the small intestine, and its walls felt thick and leathery. The cæcum was distended, and the contraction of the ascending colon commenced abruptly. The transverse colon appeared to be normal.

Intussusception and its Treatment.—

D'Arcy Powers, in the *Clinical Journal* of August 14, 1901, gives a *résumé* of forty-two cases treated in the surgical wards of St. Bartholomew's and the Victoria Hospital for Children, during the ten years ending December 31, 1900. The total number of cases was 65; the deaths 42, the recoveries 23. An analysis of the cases shows the rarity of this disease in London. The 65 cases occurred among 46,197 surgical cases admitted during the ten years. A second point of interest is the distressing mortality which attends intussusception, even by modern methods of treatment. Two cases recovered spontaneously. There is a possibility of mistaking, in the diagnosis of all such cases, the sausage-like tumor of an ordinary intussusception for a thickening of the wall of the colon.

In discussing treatment he says that extensive experience with irrigations of hot saline solution has taught him that the method is unreliable, and he is now a whole-hearted advocate of abdominal section at the earliest possible moment in every case of intussusception. Irrigation and inflation are such doubtful methods that valuable time is lost, and if the bowel has become at all stiffened by inflammation it is impossible to overcome the adhesions. So long as the bowel remains invaginated, even to the slightest extent, the intussusception may recur. With the rarest exceptions recovery from an intussusception only takes place when the invagination is capable of easy and simple reduction. Fifteen of his sixty-five cases needed excision of part of the bowel before the intestinal obstruction could be overcome. Fourteen died and one recovered. In ten cases excision was performed because the bowel was gangrenous; in four cases because the softened tissues tore during manipulation. In six of the fifteen cases an artificial anus was made; in five cases a Murphy's button was employed. Twice Maunsell's operation was performed, and once the intestine was united by a circular enterorrhaphy.

Abdominal Contusions.—

W. D. Middleton, in the *Railway Surgeon* for August, 1901, reports the history of three cases of abdominal contusion, all followed by a fatal termination.

The first patient was a vigorous man in middle life, who was struck on the abdomen with a plank, the blow being diffused over the entire surface. But little shock resulted and the condition of the patient appeared to be good. The condition of the bowels

seemed satisfactory, especially as they remained quiet without the administration of opium. This went on for some time, when it was suddenly realized that the patient was suffering from paresis of the intestines from traumatism. Death took place so quickly that no operation would have been of service.

The second case was that of a laborer who received a blow with an iron bar upon the abdomen. There was considerable shock, but he rallied nicely, and was thought to be doing well for five days, when there was a chill. The symptoms again subsided, but recurred when an abdominal section was made, and the abdomen was found filled with pus. Death took place twenty-four hours after the operation.

The third case was that of a laborer who was struck upon the abdomen by a cable which had suddenly been pulled taut. He suffered considerable shock, but at no time did his temperature or pulse indicate any serious difficulty. He had complained of pain and tenderness, but not much attention was paid to it as his pulse and temperature were so nearly normal. He became unexpectedly worse, and went into a state of collapse with such suddenness that no operation to save him could be made. The post-mortem examination showed four coils of the small intestine gangrenous.

Schleich's Anesthesia in Mastoid Operations.—

G. Alexander, in the *Wiener Klinische Wochenschrift* of August 15, 1901, gives an account of eleven cases in which the mastoid was opened under local anesthesia. The average length of the operation was three-quarters of an hour, and the amount of Schleich's solution varied from 35 to 70 centimeters, containing from three-fourths to a grain and a half of cocaine. The amount absorbed by the patient is of course impossible to estimate, as the necessary incisions allowed a large proportion to escape. In performing the operation under local anesthesia the first incision must only include the skin, and then the periosteum is incised, after it has been infiltrated with the solution. Special care must be exercised in infiltrating the attachment of the sternomastoid muscle. When this is done the bone is freely exposed. The mastoid is then opened and the cavity injected with the solution. In five of the cases there was no pain following the operation, and the appetite remained good. In the remaining cases there was some pain in the wound, and headache. In two cases the patients had vomiting, and one had severe toothache on the side operated upon. The healing of the wound was in all cases normal.

Extirpation of the Gasserian Ganglion.—

F. Krause, in the *Münchener Medicinische Wochenschrift* of July 9, 1901, reports the final result in twenty-seven patients who had the Gasserian ganglion removed for trigeminal neuralgia. All of the patients were past 30 years of age, the majority being between 50 and 70. In several the neuralgia had lasted for more than a score of years. All were completely cured. The first six cases were operated on in 1893. Three patients died, one from advancing chronic disease. Another patient, a man past 70, with an irregular heart and extensive atheroma of the vessels, died six days after operation from heart failure. The third death, in a woman of 72, was without discoverable cause, the wound having healed normally. All of the patients had been operated upon by resection of some portion of the nerve trunk prior to the radical operation. The only sensation noted upon the side on which the operation was done was an occasional itching and a brief burning. In all cases in which the disease seemed to be of a functional or hysterical character operation was declined. The duration of the operation varied from one and one-fourth to three hours, depending largely upon the amount of hemorrhage.

Peroxide of Hydrogen in the Removal of Adherent Dressings.—

Mikulicz and Poncet, in *Le Scalpel*, No. 48, 1901, speak of the difficulty with which gauze is removed from a superficial wound and the pain caused by separating a gauze drain from the deeper structures. In some cases it adheres so closely that the granulations are torn and there may be considerable hemorrhage, to say nothing of the pain which the removal causes the patient. All these difficulties are overcome by saturating the gauze with peroxide of hydrogen. It must be thoroughly applied. Under such circumstances bubbles of gas will be seen to form between the tissues and the gauze, which will liberate it, this being facilitated by slight traction upon the dressing, and as it is lifted allowing the peroxide to flow between the dressing and the wound.

Skin-grafting under Local Anesthesia.—

Gaston Torrance, in the *Philadelphia Medical Journal* of July 13, 1901, describes a method of skin-grafting which is carried out without the use of a general anesthetic. Local anesthesia is accomplished by a spray of ethyl chloride. A number of cases are reported, one of which was a man 30 years of age, with a severe burn which involved the whole circumference of the arm. The involved area

was thoroughly cleansed, and at the same time the thigh was washed and sterilized and then washed with alcohol and ether to remove grease. An area one and a quarter inches in diameter was anesthetized with the spray, and from it a section of skin was removed with a razor, and immediately applied to the arm. As the frozen graft was applied to the granulating surface it immediately thawed and closely adhered to the surface. In doing the grafting a portion of the corium is removed with the epidermis. The method is advised because it is painless, it admits of several grafts being applied at one time, and avoids a general anesthetic.

Lumbar Puncture in the Diagnosis of Cranial Fracture.—

M. Tuffier, before the Société de Chirurgie (*La Presse Médicale*, Aug. 3, 1901), reported three cases of grave traumatism of the head in which it was difficult to determine the exact nature of the lesions. In all of them he made a lumbar puncture for the purpose of obtaining the cerebrospinal fluid, hoping that it might throw some light upon the nature of the cerebral trouble. In two of the cases the fluid was red, due to admixture with blood. From this he concluded that two of the cases had sustained a fracture of the cranium. This diagnosis was confirmed by the death of both patients. The third patient, a woman 62 years of age, whose cerebrospinal fluid was clear, made an excellent recovery. The results in these cases confirm the belief that lumbar puncture is of value in diagnosis of cranial traumatism; by it we may be able to diagnose fracture, and to some extent predicate the severity of the lesion by the color of the fluid. There is a possibility that this procedure may also be of value in therapeutics of head injuries, by subtracting a certain amount of the fluid from the subarachnoid space and thus lessening intracranial pressure.

Ethyl Chloride Narcosis.—

W. J. McCardie, in *The Lancet* of July 20, 1901, gives some further cases of ethyl chloride narcosis, which he has used for short operations, the longest operative anesthesia lasting from sixteen to seventeen minutes. The result in this case, the longest in which the patient was under the narcosis, was excellent, though she had previously had serious symptoms from the administration of chloroform. In one case the patient died about an hour after the administration. In one instance the accompanying muscular excitement made full anesthesia and operation impossible. He has found the chloride of ethyl narcosis to be especially efficient in short opera-

tions, such as the removal of tonsils or adenoids. It gives a rather longer narcosis than nitrous oxide, and it admits of the patient being in an upright position, thus giving a certain facility in operating. In adenoid operations the anesthesia commonly lasts from three-fourths of a minute to two minutes, which is quite sufficient for the removal of the adenoids. On an average he uses from five to ten cubic centimeters of ethyl chloride.

Removal of the Incus in Progressive Deafness.—

Charles H. Burnett, in the *Philadelphia Medical Journal* of August 17, 1901, asserts the value of incudectomy in dealing with progressive deafness. Between 1888 and 1892 he operated upon twenty-five cases of progressive hardness of hearing, but of these few could be kept under continuous observation. Some of the cases were watched from ten to thirteen years, and he now feels justified in claiming that incudectomy arrests progressive deafness not only in the ear operated upon, but in the opposite ear if it has happened there, or acts as a prophylactic in the better ear if it be not yet affected. The operation is said to overcome the retractive force of the tensor tympani muscle, liberating the stapes impacted in the oval window. This relieves the aural vertigo and the tinnitus. Since 1892 he has operated upon fifty-three cases of progressive deafness to overcome this retractive force of the tensor tympani: four times by resection of the long limb of the incus, eight times by tenotomy of the tensor tympani, and forty-one times by incudectomy, the last named method being preferable.

Treatment of Infected Wounds with Tincture of Iodine.—

Carl Beck, in the *Medical Record* of August 3, 1901, speaks of the value of the application of iodine to infected wounds. The experiments that have been made upon animals do not correspond with accuracy to the conditions of infected wounds as they are presented to the surgeon. The experimental bacteriologist always uses cultures of highly virulent bacteria, while the ordinary infected wound which the surgeon sees contains bacteria of different strengths, many of which are not especially pathogenic. Every wound is to be regarded as infected that has not been made under aseptic precautions. If such wounds are carefully dried and the tincture of iodine liberally applied to the surface, no cultures can be obtained from the areas so treated. No general disturbance has been noted from the use of iodine in this way, though in two cases an iodine reaction was obtained in the urine.

THERAPEUTICS.

Treatment of Delirium Tremens.—

J. F. Perry, in the *Boston Medical and Surgical Journal* of August 22, 1901, says that his experience with delirium tremens commenced during the War of the Rebellion, while a medical officer on the receiving ship *Ohio*. He then had ample opportunity of observing the effects of the sudden withdrawal of alcohol from soldiers who celebrated their enlistment by a drinking bout. Since his observation at that time he is convinced that the abrupt stoppage of alcohol increases the liability to delirium, and in the treatment of severe cases alcohol cautiously given may be useful, but should be supplemented by other medicinal agents.

A steady drinker is a more frequent victim of delirium than one who goes upon sprees, unless the latter be of long duration. The loss of sleep and the failure to take proper nourishment are influential factors. Those who are addicted to the use of morphine can generally take enormous quantities of alcohol without causing delirium. There are no certain symptoms of approaching delirium. Great nervousness is suggestive, but by no means positive. A mobile pupil with a tendency to dilatation is frequently noted in the twenty-four hours preceding the onset of delirium.

In the treatment no single drug or combination of drugs will be found suitable in all cases. In the Blue Hill Sanitarium, with which the writer is connected, no set rule is followed in the treatment, but such symptomatic agents are used as seem to meet the individual indications. In that institution only one case of delirium tremens lasted beyond twenty-four hours, and that was the only fatal case.

For the first two or three days the victim of alcohol is generally allowed a reasonable quantity of the liquor. He is put upon a liquid diet, as nourishing as can be prepared, given every two hours during the day. In mild cases the alcohol is stopped at once, but in severe cases it is continued four or five days, the quantity being gradually reduced. If the daily quantity of whiskey has been a quart, the first day a pint is allowed; the next day eight ounces; then four ounces, then three, and the following day it is withdrawn. As substitutes for alcohol, ammonia, camphor, valerian, capsicum, and ginger in various combinations are employed. In most cases it is necessary to improve the heart's action by the use of strychnine and nitroglycerin. With marked muscular tremor bromides may be

given every two hours in small doses. As a rule the first day is passed quite comfortably, and the patient often sleeps without a hypnotic. The second day is as a rule the most trying, the patient being tremulous and nervous, and delirium then generally sets in, but it may be delayed until the third day. An early effort is made to secure sleep; for this purpose chloral hydrate combined with bromides is best. It is applicable to all cases if administered cautiously, except in those with a weak heart. The bromide of potassium is given in eight-grain doses and its effect closely watched, the quantity being increased but never reaching a large amount. Hyoscine hydrobromate is a useful remedy, but should be given cautiously, the dose not exceeding $\frac{1}{200}$ of a grain; it, with apomorphine and morphine, are the only remedies that can be administered to the patient, who will take nothing by the mouth. Morphine often acts admirably in quieting the patient, but it must not be pushed too far. If the patient is gotten to sleep as a rule danger is past, but as soon as he awakens the systematic administration of liquid nourishment, at intervals of two hours, and the heart tonics, should be continued.

The Influence of Climate upon the Treatment of Consumption.—

C. T. Williams discussed before the British Congress on Tuberculosis (*The Lancet*, July 27, 1901) the value of climate in the treatment of pulmonary tuberculosis. Reference is made to the fact that the arrest of tuberculosis has been produced by long residence in the Andes, without the aid of sanatorium or other treatment. These successes must be attributed to climate alone. Numerous instances of arrest can be shown resulting from sea voyages, of warm and of cool marine climates, or of dry and warm climates; in fact, it has been proven that the arrest of tuberculosis occurs in a variety of climates and under widely varying conditions.

In all climatic treatment care must be taken to bring the patient fully under the influence of the atmosphere and to insure a strictly open-air life under perfect hygienic measures. The climate which will meet the indications is not necessarily one which is warm or cold, but it should be dry, with abundant sunshine, admitting of much exercise, and producing body and muscular vigor. Tropical climates are excluded on account of their relaxing influence. Climates may be conveniently divided into three groups: (1) Marine; (2) dry, warm climates; and (3) mountain climates.

Of the marine climates the British Isles have been found suitable for a large number of cases of chronic pulmonary tuberculosis. The warm marine climates of the Canaries, Madeira, and the West

Indies are beneficial in catarrhal tuberculosis, but not as a rule in phthisis generally. Sea voyages furnish the most successful form of marine climate, and providing the patient's cabin is well ventilated, that the food supply is good, and that the voyage is made in temperate regions, it often arrests the disease. Sea voyages are most beneficial in hemorrhagic phthisis, in strumous or scrofulous phthisis, accompanied by affections of the glands or chest, and in cases of chronic tuberculous cavity where the disease is limited and unilateral.

The dry, warm climates find their best illustration in those of the Mediterranean basin, which is remarkable for dryness, sunshine, and the purity of its atmosphere. It is especially adapted for open-air treatment, though the extremes in temperature between night and morning are great. Such a climate appears to favor an improvement in the general condition rather than the arrest of the local process. It is especially adapted for those cases with a chronic cavity, and for older persons who are unable to take much exercise.

High altitudes are marked by the increased facility with which the sun's rays are transmitted through the attenuated air. This amounts to a difference between sun and shade temperatures of 1° F. for every rise of 235 feet. Such climates as a rule have a sterile atmosphere. Removal to such a climate is followed by an increase in the pulse-rate and respiration, followed later by a slowing and deepening of respiration and an expansion of the thorax. The effect of these mountain climates upon early tuberculous consolidation is remarkable. Expansion of the chest takes place, unless opposed by extensive lung fibrosis or pleuritic adhesions, cough and expectoration disappear, and there is an improvement in digestion and assimilation, a gain in weight and circulatory power. High altitudes have produced the best climatic results in the treatment of phthisis, but they are most successful in early tuberculous consolidation. As a rule they are more successful in young individuals than in those of middle age. All climatic treatment should be carried out under strict medical supervision, preferably in sanatoria.

The Treatment of Tuberculosis.—

The British Congress on Tuberculosis did not offer much in the way of treatment of consumption that is distinctly new, but the importance of certain lines of treatment which are now generally accepted was emphasized.

The sanatorium idea was quite freely exploited. J. C. Browne said that in the sanatorium the consumptive has the best chance for

recovery, providing the disease is still in a curable state, while the incurable are prevented from being a source of danger to those about them. The time might come when some remedy for the disease would be discovered, but until that time sanatorium treatment is the most efficient.

J. B. Sanderson spoke of the work which had been done in Germany, where fifty sanatoria are in operation, affording accommodation to over 4000 working men and women. The funds are provided by the compulsory insurance against illness which exists in that country.

E. S. Thompson pointed out the difficulty of carrying out the open-air treatment in the homes of patients. Balconies and shelters are superior to rooms even when the windows are open. The open-air treatment should be supplemented by careful attention to the general condition and a patient study of the temperature. The mouth and rectal temperatures were contrasted, showing that the mouth temperature is not an adequate guide for treatment. There should be a careful study of the respiratory movements and a discriminating attention to the digestive system. Pharyngeal inflammation occurs early in tuberculosis before the larynx or even the lungs are affected.

Albert Josias and J. C. Roux discussed the treatment of pulmonary tuberculosis in children by raw meat and muscle serum. Their studies included sixteen cases, twelve of which were observed for a prolonged period and with great care. They found that the use of raw meat was only valuable in the early stages of the disease. After there was a breaking down of the lung tissue and a secondary mixed infection the treatment was no longer of service.

R. Maguire discussed the inhalation of formic aldehyde combined with open-air treatment. Formalin is a powerful antiseptic and germicide, non-poisonous and non-corrosive. It can be used in the form of vapor, and being of low specific gravity mixes well with air. It does not injure or deface clothing or household articles. It is easy of application. The results with formic aldehyde had been very satisfactory, and he strongly urged that the drug should be given a fair trial in every place where the open-air treatment is carried out.

Zomotherapy.—

At the last meeting of the International Medical Congress, Richet and Hericourt attracted considerable attention by their experimental results upon animals, feeding them with raw flesh,

by this means preventing the development of tuberculosis. This treatment was called "zomotherapie." According to Maragliano raw meat contains an antitoxic substance which directly antagonizes the development of the tubercle bacillus, while Richet claims that raw meat increases the granulation-producing power of the blood and thus tends to wall off the infection.

Recently C. Frankel and G. Sobernheim have repeated the experiments (*Berliner Klinische Wochenschrift*, July 15, 1901), but have by no means arrived at the same results. They employed dogs. Great care was exercised in injecting the same quantity of bacilli, and they found that the dogs died whether fed upon flesh or upon a mixed diet. The same was true of four rats. One which received a flesh diet was found markedly tuberculous, dying on the twenty-eighth day. Another eating bread alone lived 198 days, and no tubercle bacilli were found. In both these rats the inoculation was intraperitoneal. A subcutaneous injection of two rats was followed by death in forty-eight days, with absent tubercle bacilli; a second lived 188 days and was found markedly tuberculous. The writers in a general way state that their experiments are not conclusive, but they do not support the view that raw meat has a specific effect on tubercular infection.

The Treatment of Skin Diseases by Finsen's Light Rays and the X-rays.—

At the last meeting of the British Medical Association (*The Lancet*, Aug. 10, 1901) there was an exhaustive discussion in the Section on Dermatology, opened by Malcolm Morris, on the use of Finsen's light method and *x*-rays in treating diseases of the skin. Mr. Morris devoted his attention chiefly to this treatment in lupus. In northern latitudes the sun cannot be relied upon, hence it is necessary to use an electric lamp. Up to last July there had been treated under his direction sixty cases. In thirty-six of these the disease was lupus vulgaris, in six lupus erythematosus, in thirteen rodent ulcer, in one doubtful rodent ulcer, in two alopecia, in one keloid, and in one epithelioma. Of the cases of lupus vulgaris, eight might be considered as cured; in three the treatment was abandoned because of failure of the general health; in six the result was unsuccessful. Of the cases of rodent ulcer, seven were cured; in two the treatment could not be continued. Of five cases of erythematous lupus, in two the result was satisfactory; in three the treatment was discontinued. Of the cases of keloid and epithelioma nothing definite could be affirmed. In the successful lupus cases the number of sittings varied from eight to 370.

The discussion was admirably summed up by Radcliffe Crocker, who said that he has had more experience with *x*-rays than with Finsen's method. He has come to the conclusion that in favorable cases the results are as good as it is possible to achieve, but that the number of such cases is not very large. The treatment must be limited in its scope, because in some cases 300 sittings were required. The Finsen and *x*-ray treatments have evidently come to stay. It is a great mistake to abandon the older and still excellent methods. Scraping as well as the application of caustics is useful, and can be combined with these newer methods.

Diuretic Effect of Chloride of Sodium Solution. –

Thompson, in the *Journal of Physiology*, xxv, p. 487, has given us a further study of the diuretic effects of the chloride of sodium solution. The number of exact observations along this line have not been considerable. In 1871 Bock and Hoffmann spoke of the diuretic action of injections of chloride of sodium. Later Dastre and Loye claimed that the kidneys eliminated exactly the quantity of the liquid which had been introduced into the veins. In their experiments large quantities of the fluid were injected, while in those of Thompson smaller quantities were employed, from two to five centimeters for each kilogramme of the animal experimented upon. Such a dose produced a diuresis which eliminated a much larger quantity of fluid than that which was injected. The maximum diuretic effect was noted at the end of the second hour, when it began to diminish, and finally ceased at the end of the fourth hour. The total elimination of urea and nitrogen was augmented, but the amount of urea did not follow closely the quantity of water, the latter reaching a maximum at the end of the first hour. The diuretic action is not to be attributed to increase in the blood-pressure, but on the contrary it was noted that there was a marked fall at the time of the maximum diuretic effect. This was attributed by Thompson to the separation of large quantities of water from the blood.

The Electrolytic Transmission of Drugs Through the Skin.—

Ten years ago the question of the transmission through the skin of various substances by the aid of the electric current was extensively studied and favorable results were reached. There has been little attention paid to the matter of late, notwithstanding that it bade fair to be a distinct addition to our therapy.

F. W. Smith, in *The Lancet* of August 10, 1901, again attracts

attention to the matter, experimentally showing how sulphur from Harrogate sulphur water can be driven through a pig's skin by the electric current. The skin was tied over the open mouth of a jar containing the sulphur water, in which was placed the negative pole of a thirteen-cell battery. A piece of blotting-paper was placed in contact with the under surface of the skin, connected with the positive pole. Three milliamperes of current produced a deposit of sulphur upon the blotting-paper. This experiment he thinks confirms the clinical observation that patients suffering from eczema have been cured by the application of electric currents while in the sulphur-water baths of Harrogate. Many that obtained relief had previously taken the baths without the current with no improvement.

Intradermic Injections in Acne Rosacea.—

D. H. S. Tuthill, in *Merck's Archives* for July, 1901, describes the case of a man 34 years of age who had been affected with acne rosacea for seventeen years. The disease involved the nose and extended out on the cheek, and was very disfiguring. A solution of pepsin was prepared in distilled water and injected beneath the reddened area. Each treatment was followed by considerable swelling, which would subside by the following day. In all five injections were made, covering a period of about three weeks. In a month from the first treatment the pimples had vanished, but a reddish color covered the original area, which in contact with the cold air was still apparent. Active exfoliation of the skin followed the injections. The reddish color, which marked for a time the site of the original trouble, gradually grew fainter, and at the end of two and a half months not a sign of the original disease remained.

Sulphuric Ether in the Removal of Ceruminous Plugs.—

E. L. Meierhof, in the *New York Medical Journal* of August 24, 1901, speaks of the difficulty with which cerumen is removed. Sometimes when the syringe is employed extra force is used to dislodge the impacted mass, with the possibility of injuring the tympanic membrane. To facilitate the removal of the impaction various substances have been employed to soften or partly dissolve the mass. Among these are alcohol, glycerin, various salts of sodium, and peroxide of hydrogen. The writer has tried all of these solvents, but none has given such satisfaction as undiluted sulphuric ether. It may be poured from a small bottle or dropped from a pipette into the external auditory canal. In a few seconds

the cerumen is partly dissolved and its attachment to the canal broken up, the syringe removing the fragments in a few moments. He has noticed no ill effects from the application.

Tannoform in the Night Sweats of Phthisis.—

A. Nolda, in the *Berliner Klinische Wochenschrift* of July 1, 1901, gives the history of eight cases of phthisical night sweats which were treated with tannoform. In seven of the cases there was a disappearance of the symptom, and in the eighth case there was improvement. In consequence the appetite improved, and it was no longer necessary to give atropine, the omission improving the general condition. In two cases there was slight burning and itching of the skin.

Tannoform, which is the condensed product of tannin and formaldehyde, was used in the form of a powder, one part of tannoform to two of talcum. The powder was rubbed into the breast and portions of the body which commonly give the greatest amount of transpiration.

OBSTETRICS, GYNECOLOGY, AND PEDIATRICS.

The Tampon in Gynecological Therapy.—

Maxwell Benjamin, in the *Medical Record* of July 20, 1901, has a paper prepared especially in the interest of the general practitioner in reference to the use of tampons. This treatment is indicated in the large class of patients who find their way to physicians and who are not in need of surgical intervention. In too many cases practitioners neglect the proper application of the tampon, being content with any kind of material and with the patient in any position. It is not contended that tamponing, even if properly done, can replace radical measures, but it often affords relief in cases which refuse more radical measures.

Material.—Any substance which is non-irritating and which provides for capillary drainage, and is easily introduced and retains its resiliency when wet, may be used. Practically the choice is restricted to cotton, wool, and gauze. Absorbent cotton is invaluable for the application of fluids, but it is easily compressed into a hard mass and does not afford drainage. This can be obviated by separating the fibers. Non-absorbent cotton may be used where an antiseptic or astringent powder is to be applied, and in some cases it may be used for its mechanical effect; it may be used as a support

for an absorbent tampon. Wool is the best material; it is soft, allows drainage, and retains its resiliency for a longer period than cotton. The wool tampon should, previous to its insertion, be covered with vaselin. Wool may be covered with a layer of absorbent cotton, the latter absorbing the medicament, while the central portion of the tampon retains its elasticity and acts as a perfect drain. Gauze is never used by the writer, except in cases where it is necessary to check hemorrhage.

Size.—Numerous small tampons are better than one large one, as the latter cannot be easily manipulated. The cotton tampon which the writer employs is made from a piece of cotton five inches long and three inches wide; it is folded into four thicknesses, and a double thread about six inches long is tied about its center. The wool tampon is prepared in the same manner and covered with a layer of absorbent cotton about one inch in thickness.

Application.—In using the tampon the patient should be in the Sims position, as a rule, as the distention of the vagina is not so great as in the knee-chest position, and the danger of overpacking is lessened. In backward displacements of the uterus the knee-chest position has the advantage of throwing the uterus forward and permitting of the application of the tampon to the posterior fornix. In removing the tampon, which should be done at the end of twenty-four hours, it should be always withdrawn by pulling upon the thread downward and backward, its removal being facilitated by pressing the perineum toward the coccyx.

Purposes.—Tampons are used for their medicinal and mechanical effects. The medicament may be used for the relief of pain or to produce counter-irritation or the absorption of an inflammatory product, or contraction of relaxed tissues. Glycerin is the best adjuvant to other drugs; it is hygroscopic and will assist in the reduction of enlarged uteri. In erosions of the cervix a tampon carrying a 25-per-cent solution of ichthyol in glycerin will, besides its germicidal action, cause a desquamation of the epithelial cells of the cervix. This is sometimes followed by a regeneration of the mucous membrane and a return of the cervix to the normal condition. In chronic endometritis or parametritis, a tampon of boro-glycerin or ichthyol and glycerin is often of benefit; the altered position of the uterus improves the circulation and helps the local condition. If after several applications there is no improvement, more radical measures are indicated. Tampons are useful in hemorrhage, which they control, not only by pressure, but by carrying the astringent or hemostatic remedies directly to the part. In

inflammation of the vagina and vulva a solution of nitrate of silver can be applied directly to the inflamed mucosa, which are then kept apart by a tampon impregnated with boric acid. In malpositions and prolapse the organ can be sustained at a higher level and its circulation improved. In cystocele and rectocele prolapse may be prevented by the introduction of a tampon. In cases of miscarriage prior to the fourth month, a tampon serves a useful purpose in terminating the premature labor. For this purpose gauze is the preferable material for packing.

A Case of Arteriosclerosis in a Child.—

Allen Baines, in the *Archives of Pediatrics* for August, 1901, says that general arteriosclerosis must be rare in children, as he has been able to find but a few cases in the literature. In none of those reported was the sclerosis as general as in the case that came under his observation.

The patient was ten years and six months old when admitted to the Sick Children's Hospital in Toronto. The family history was negative. The child at the age of seven years had measles, and two years before coming under observation had recurrent chorea, the attacks lasting from two to ten weeks. There was no history of scarlet fever or diphtheria. He drank water in large quantities, and there was a history of nocturnal enuresis for several months prior to the beginning of his illness. On the evening of December 3, 1900, he complained of severe headache and had convulsions and vomiting. Two days later there was hemorrhage from the mouth. On admission to the hospital, which was one week after the beginning of the illness, the patient was pale, expression dull, but the body was fairly nourished. The teeth were discolored and much decayed. The mouth was full of blood-clots which formed every hour or so, the hemorrhage proceeding from a tooth cavity and from ulcers on the cheek. The ulcers were four in number, with hard, raised edges, irregular in shape, and bled freely. There was infection of the gums. The tongue was tender and covered with a black coat. The local conditions in the mouth improved rapidly under potassium chlorate. The urine showed albumin 8 per cent, specific gravity 1009. Microscopically nothing was found. The heart was enlarged, the apex being to the left of the nipple line. Epistaxis was frequent. All of the popliteal arteries were found markedly sclerotic, considerable pressure being necessary to shut off the circulation, and when empty their hardened walls could be easily made out. The patient died of exhaustion one month after admission.

The autopsy showed the fibrous tissue throughout the entire body increased. The urine removed post mortem showed a specific gravity of 1007, an acid reaction, a large quantity of albumin, numerous hyaline and granular casts, with epithelial cells and débris. The liver presented a slight nutmeg appearance. The vessels of the brain showed no signs of sclerosis. The kidneys were pale and mottled, the left being extremely small and lobulated. The cortex was very narrow and the capsule stripped with difficulty. The femoral arteries were examined and showed marked sclerosis involving the entire wall of the artery, narrowing its lumen. The vasa vasorum were found sclerotic and in places obliterated. The inner parts of the tunica adventitia and the tunica media presented a hyaline degeneration, probably due to the morbid changes connected with the alteration in the blood-supply of the arterial wall, leading to the defect in nutrition.

The Complications and Degenerations of Fibroid Tumors of the Uterus.—

Charles Noble, before the British Gynecological Society (*The Lancet*, July 27, 1901), said that hemorrhage is by no means the chief or only danger attending fibroid tumors. They are liable to necrosis, myxomatous and cystic degeneration, calcareous infiltration, and complicating adnexal affections. He gives the details in tabulated form of 218 cases upon which he had operated. The complications found in sixty-six of these must have inevitably proved fatal without operation; in twenty-five others they would have imperiled life; and in thirty of the remaining patients they would have resulted in chronic invalidism. Seventy-eight of the patients would at a low estimate have died from the complications, while fifteen would probably have been a low death roll from hemorrhage, chronic anemia, cardiac and renal degeneration, or other direct effects of the tumors themselves. Based upon the study of complications in these cases he estimates a mortality of 42 per cent without operation. These figures do not include the large ovarian tumors and the cases of malignant disease. The disappearance of fibroid tumors after the menopause or after pregnancy is merely a curiosity in the history of these growths. In women with fibroids the menopause is delayed for from three to ten years, and even if improvement followed it necrosis of the tumor might subsequently take place. Twelve of the author's patients were over 50 years of age when they sought relief from sufferings which according to classical teaching should have already ceased.

Deaths directly due to fibroid tumors are seldom recorded. When the symptoms become grave operation is generally performed. Those advocating the expectant treatment agree that anemia from hemorrhage indicates operation, yet such a condition materially increases the risk. If left alone more than one-third of the writer's cases would have ended fatally, and more than one-fourth would have been chronic invalids. Of the remaining one-third but few would not have been incommoded by the tumor. He is not sure that his experience represents the average in these cases, as no systematic study has been made of them in reference to the complications. The only table resembling his own is that of A. Martin, who published 205 cases, in each case showing the complications but excluding the condition of the adnexa. Allowing for this difference in classification the results are similar.

The Value of Conservative Treatment of the Uterine Appendages.—

A. Goldspohn, in the *Journal of the American Medical Association* of August 24, 1901, says that in view of the extreme value of the conservative treatment of the uterine appendages, and that there are a few who still doubt the success of these methods, he has undertaken a study of the cases upon which he has performed such operations during the past three years. Of 128, it was possible to ascertain the actual condition in 97. Of this number 80 were examined by himself or other physicians, and in 17 cases an accurate and complete written statement by the patient was obtained. Nine were treated by anterior median vaginal celiotomy, 32 by median ventral celiotomy, and 56 by bilateral inguinal celiotomy through the dilated internal inguinal rings in conjunction with an Alexander operation.

In dealing with single or isolated cysts of the ovary the projecting portion is cut away and the lining membrane is peeled or scraped from the remainder, the wound being closed with continuous sutures of fine catgut. Hard and contracted cicatricial parts are occasionally exsected, forming a V-shaped wound, which is closed in the same manner. Multiple cysts near each other, when more deeply situated, are opened by a straight or curved incision on the free border of the ovary and extending usually not more than half-way through it. By this incision all follicles of one centimeter or more in diameter are opened, and the lining is peeled or scraped out. The wound in the ovary is then closed by two sets of sutures, one going to the bottom of the wound and the other coapting the edges. He uses for this fine catgut, hardened in formalin and sterilized by

boiling, but never chromicized. The needles are fine, round, non-cutting, and have a full curve.

A tube that contains pus is always sacrificed. In cases where the ovary can be liberated and saved with or without resection, and its tube is closed and but little distended, the latter is walled off with gauze and opened and its contents removed. By suturing a permanent opening is made into the tube, providing its contents are not purulent or tubercular. The value of these conservative methods is widely shown in the results: approximately 85 per cent were free from pain and depressing nervous and circulatory disorders and enjoying good general health. Pregnancy occurred in ten per cent of the cases.

Obstetric Aphorisms.—

The *Cincinnati Lancet-Clinic* of August 3, 1901, quotes the following from the *Indian Lancet:*

1. Never rupture membranes unless you are prepared to finish delivery at once, if necessary, or unless you confine the patient artificially within a limited period of time.

2. External measurement of pelvis must be practiced to yield trustworthy results.

3. The external (Baudelocque's) diameter is never reliable.

4. The distance between the crests should be about an inch greater than it is between the spines. Equal distances or a larger interspine indicate a deformed pelvis.

5. Contraction at the outlet is extremely rare, and if it occurs it is usually the result of an ankylosed coccyx.

6. If the index-finger can touch the promontory there is always a reduced conjugate diameter.

7. If, on the introduction of two fingers, the middle one does not reach the promontory, the conjugate is normal or more than normal.

8. Whenever the whole hand can be passed through the superior strait, there is a possibility of withdrawing the child through the natural passages.

9. If the hand cannot be passed Cæsarian section is indicated.

A Case of Dermatitis Exfoliativa Neonatorum (Ritter).—

A. Ravogli, in the *Cleveland Medical Gazette* for August, 1901, reports the case of a male infant, born March 4, 1901. The child was healthy, well nourished, and at full term. Three days after birth a red patch developed on the side of the chest, a bleb formed,

and accompanied by a febrile reaction the redness and swelling extended almost over the entire body. Three days after the beginning of the illness the surface of the skin appeared as if it had been scalded, as shown in Figs. 1 and 2. The epidermis in large shreds was detached from almost the entire body with the exception of the scalp, forehead, and a few spots on the sternal region. The skin deprived of its epidermis was of an intense brown-red color, and of a pulpy appearance. When handled the epidermis adhered to the

FIG. 1.

FIG. 2.

hands of the nurse and to the clothes. The pulse at the time of admission was 140 and the temperature 96° F. During the night of the sixth day's illness the patient slept well and took some nourishment, but on the following morning died.

Injuries of the Head in the New-born.—

A. F. Currier, in the *Medical News* of August 3, 1901, says that injuries of the head in the new-born merit careful study not only because of their immediate effects, but they may occasion lifelong deformity or exercise detrimental effects upon the structure of the brain. Comparatively little study has been devoted to the post-mortem examination of these cases, except where the injury was sufficient to cause death within a short time. The obstetric forceps, while on the whole beneficial, unfavorably affects the future of the child, when not skilfully applied. The injuries received during natural labor are usually due to disproportion between the fetal head and the maternal pelvis. The head may be relatively large, the fontanels small, or the bones unusually hard so that the opposite sides will not overlap. Asymmetry of the skull is also a cause of head injury.

Attempts to rectify an unfavorable position of the head or the face by the hands or forceps may result in fracture of the bones of the head or the nose. In some cases the fingers of the operator have penetrated the skull, and in one reported case compression followed by epileptic seizures resulted from manual rotation of the head in a too narrow outlet.

The writer gives a summary of sixty cases in which there was more or less injury to the facial bones and cranium after natural and artificial delivery. In the treatment of this class of cases he urges that the same surgical principles should be applied as in injuries to the cranium and its contents in adults.

Acute Inflammation of the Pharyngeal Tonsils.—

E. Ausset and M. Dorion, in the *Archives de Médecine des Enfants* for August, 1901, call attention to the frequency with which a high temperature is met in children who present no obvious cause for the fever. In a case of that kind the absence of palpable chronic enlargement of the vegetations in the vault of the pharynx is thought to exclude the latter as a possible source. As a matter of fact the pharyngeal tonsils are subject to acute inflammation when they are not enlarged, the same as those of the fauces. In consequence but little is known of the acute inflammations of the

pharyngeal tonsils. The writer reports nineteen cases. A typical one is that of an infant eleven months old, who had been well until three days before coming under observation. At that time there was fever and cough, and for two days nasal respiration was embarrassed. On examination the chest was negative; the throat was slightly reddened and the pharynx coated with mucus. A digital examination of the pharynx showed an enormously enlarged and swollen pharyngeal tonsil. The mother stated that prior to the development of the present illness nasal respiration had been free. Two days later the child improved, and at the end of two weeks was entirely well. The examination at that time showed that the pharyngeal tonsil had shrunk to its normal volume.

FORENSIC MEDICINE.

Liability of a Physician for Abandoning a Case.—

It is a settled rule of law that a physician cannot be compelled to render professional services. Actions have been brought against physicians because of their refusal to attend a case. The fact that a license is obtained does not require that he shall practice at all or on other terms than he may choose to accept. It has been repeatedly held that the practice of medicine is not affected with a public use such as common carriers, innkeepers, etc.

When a physician has accepted a case he cannot voluntarily abandon it without rendering himself liable. He has entered into a contractual relation with the patient, the terms of which he must fulfil.

In a recent case, Lathrop *vs.* Flood, in the Supreme Court of California, 63 Pacific, 1007, the defendant, a physician, was employed to attend the plaintiff during her first confinement. He assumed charge of the case, visiting the plaintiff at intervals until he deemed it proper to employ instruments to aid in the delivery. The plaintiff at this point shrank back and screamed, compelling the defendant to let go the instruments. The defendant threatened the plaintiff that if she did not quit screaming he would quit the case, and on the failure of a second and third attempt to use the instruments he abruptly left the house. This was at midnight, and it was an hour or more before another physician could be obtained, after which the plaintiff was safely delivered with the use of instruments.

The court remarks in the opinion: "It does not appear that

the defendant's treatment of the case up to his abandonment of it was either negligent or unskilful. It does not appear that undue physical injuries were inflicted by his treatment, either upon the mother or the child. If either suffered in this respect it is demonstrated that the actuating cause was the conduct of the patient in moving and shrinking while the instruments were actually inserted."

The law as laid down by the court was that a physician might elect whether or not he will give his services, but having accepted his employment and entered upon the discharge of his duties he is bound to devote to his patients his best skill and attention; and to abandon his case only under one or two conditions: (1) Where the contract is terminated by the employer, which termination may be made immediate; (2) where it is terminated by the physician, when it can only be done after due notice and an ample opportunity afforded to secure the employment of other medical attendance.

The above decision is of very great interest to physicians, and the laudable efforts of one of our number to secure a much needed vacation may lead to his abandoning a case in such a manner as to render himself liable. Of course, it is not the intention of this decision to hold a physician in constant attendance when circumstances require that he should be elsewhere, but it behooves the physician in giving up a case to use what diligence he may to secure the presence of other professional attendance, and so far as possible gain the consent of the patient and his relatives to the change.

Hereditary Insanity as a Defense in a Criminal Trial.—

A remarkable case was reported in the *Illinois Medical Journal* for August, 1901. The defendant, a teacher about 24 years of age, was charged with the murder of her husband under circumstances showing considerable deliberation. The killing occurred on a Saturday night following the close of a school week in which the defendant had taught as usual. In the evidence it was shown that the husband had a life insurance policy which she insisted should name her as beneficiary. On the night of the killing she learned that this change had been made. She obtained a revolver for the purpose of killing him, but he stirred as she passed by the lounge on which he was sleeping, and she hid the revolver in the adjoining room. She then waited until he was sound asleep, when she again secured the revolver, placed it close to the side of his head and fired. The ball

lodged in the bones of the face. The shot awakened him and he sprang up, when she fired three or four times more, one shot taking effect in the back of the neck and one in the abdomen, which resulted in his death four hours later.

Three hundred dollars which was in the trunk of the murdered man was found to be missing. Notwithstanding the strong criminal motives which were shown, the remarkable line of insane heredity in the accused undoubtedly resulted in her acquittal. It was shown that her great-grandmother had been insane and committed suicide, leaving seven children, all of whom were insane at some time in their lives, and none of whom ever recovered from their insanity. Two of the children of this great-grandmother were violent, necessitating their confinement in an asylum, while the remainder were affected with a less marked mental disease which resulted usually in suicide. The grandchildren of this great-grandmother were largely afflicted with insanity, and the grandfather of this defendant was insane and hanged himself before the birth of the defendant. The mother of the father of the defendant, hearing of the suicide of the father, became insane in that moment and continued so the balance of her life. The father of the defendant born under these circumstances became violent at an early age, though not so violent as not to be able at all times to pursue some employment. He was married while a young man, and this defendant was his only child. The evidence showed that the defendant bore a marked resemblance to her father, that she had peculiar twitchings of her face and body, a peculiar stare or expression about the eyes, was of a very nervous temperament, and was frequently seen to drop her knife and fork at the table.

The jury found her insane at the time of the commission of the act, and that the insanity was of a continuing sort.

Examination of the Person of a Plaintiff in Personal Injury Cases.—

It seems to be a well settled rule of practice with most of our courts that a judge has no power to order an examination by physicians in a personal injury case if the plaintiff objects. It has been held that if objection is made it is a proper subject of comment before a jury. Recently the Supreme Court of Kansas held (*Journal of the American Medical Association*, Aug. 17, 1901) that in an action to recover damages for personal injuries the trial court has the power to require the injured party to submit the unexposed portion of the body to examination by physicians and surgeons appointed by the court, when in the exercise of a sound judgment

it appears to the court that necessity demands such an examination. In actions for personal injuries the exact location and extent of the injury is often the question in dispute. While the court in the exercise of its duties should protect the feelings and sensibilities of all litigants, the rights of justice in the ascertainment of truth is the chief object of the trial. This object is defeated when the truth is suppressed. In an action for personal injuries the injured party may call physicians, to whom he may expose his person, not for the purpose of effecting a cure, but for the purpose of using this expert evidence to assist him in the trial of the case. He may also expose the injured portion to the jury in so far as lies within the rules of decency. Should the litigant be permitted to withhold the truth or the means of ascertaining it through the idea that an indignity is being offered? That is not an indignity which is not intended. May he be permitted to present so much of the truth as he desires and as may serve his interests and withhold the remainder? This would certainly be his privilege if the court does not wish to make an order that will develop the truth. An examination will not be ordered needlessly. It is for justice only that the court has the power, and in each case it is to be exercised or not according to the discretion of the presiding judge. The Supreme Court believes that it is wise to trust to the courts to protect the sensibilities of the parties in such examinations. It is unsound doctrine to hold that a litigant is to use his power to develop so much of the facts as may appear to be to his interest.

[The court seems to restrict the examination to inspection or handling through the clothing. If covered, how thick shall the covering be? A medical examination for medicolegal purposes must be thorough if it is to be of value. In most cases this necessitates the removal of the clothing from the injured, and the use of the usual instruments of precision. The decision, limited as it is, is in the right direction—it does not go far enough.]

Fusel-oil Poisoning.—

T. B. Futcher, in *American Medicine* of August 10, 1901, reports two cases admitted to the Johns Hopkins Hospital. There seems little doubt that the two patients drank a considerable quantity of fusel oil. Both were found lying on the floor in the same room in an unconscious condition, with an empty bottle labeled "Fusel oil" beside them. The urinary findings in both cases were of special interest. The unconsciousness following the ingestion of the oil lasted for eight hours in both cases. In the first patient on the

morning of admission the urine was smoky and had a peculiar aromatic, fruity odor. The reaction was acid, the specific gravity 1025. There was considerable albumin, and Fehling's solution was readily reduced, as was likewise an alkaline solution of bismuth subnitrate. The fermentation test gave an abundant evolution of CO_2. The phenylhydrazin test showed an abundant formation of yellow crystals. A most interesting point was that there was no rotation of the rays of polarized light either to the right or left after the urine had been freed from albumin. The deep color of the urine was found to be due to methemoglobin. The microscopic examination of the sediment showed numerous coarsely granular casts and an abundant granular débris. Three days later the urine was practically normal, and the albumin and casts had disappeared.

In the second case the urinary findings were substantially the same as in the first except that the rays of polarized light were rotated to the left.

A number of experiments were made upon dogs, in which it was definitely ascertained that when fusel oil is administered to animals it is eliminated as glycuronic acid by the urine. When this substance is taken by men it acts as an intoxicant, causing unconsciousness of several hours' duration. In some cases it produces a profound disorganization of the blood, shown by the presence of methemoglobin in the urine. In all cases it causes a transitory nephritis and a glycosuria, lasting two or three hours.

Proof of Insanity in Criminal Trials.—

The Supreme Court of Wisconsin, in Hempton *vs.* State (*Journal of the American Medical Association*, Aug. 24, 1901) has made an important ruling in relation to the admissibility of proof of mental incapacity in criminal trials. Trial courts have heretofore differed widely as to the latitude which should be given counsel in this respect. Some courts have excluded all testimony as to heredity; others have narrowed the testimony down to within a few weeks or months of the time of the commission of the crime. The Wisconsin decision holds that the acts and mental characteristics of the person may be shown for a considerable period of time prior and subsequent to the commission of the act which is the subject of inquiry. It is proper to show that the accused was adjudged insane and committed to a State hospital at a time previous to the homicide, and for this purpose there may be introduced as evidence reports of the examining physician and the daily record of the hospital.

The doctrine, once insane always insane, until the contrary is

established by evidence, is not and never was an absolute rule. It is only where the insanity is once proven to exist and to have been of a character likely to become permanent that it applies. Thus if a patient has been on parole from an asylum for more than two years, the adjudication on which he was admitted to the hospital is no longer *prima facie* proof of insanity.

The Comparison of Samples of White Arsenic.—

Edward Bartow, in the *American Monthly Microscopical Journal* for June, 1901, discusses the possibility of detecting microscopically samples of white arsenic derived from different sources. In a case of suspected poisoning he was able to separate crystals of white arsenic from a solution of malted milk and from a bottle of whiskey found on the premises of the deceased. In following up a clue the arsenic was compared with that of a sample obtained from the place in which the original was thought to have been purchased. The difference between the two samples was so marked that the writer thought that perhaps the treatment of the malted milk with ether had changed the appearance of the crystals. Some of the arsenic obtained from the store was then mixed with malted milk and treated in the same way, but the differences between the crystals were quite as marked. To be certain that his separating the salts containing the arsenic into different groups was not due to his familiarity with them, he submitted them to three microscopists, who had not the slightest difficulty in classifying them according to the sources from which they were obtained.

The work of Bartow confirms the conclusions of Dana that it is possible to identify arsenic having its origin from different sources, even after it has been subjected to the action of foreign fluids or to the gastric juice.

It is understood that all original communications sent to this journal are for its pages exclusively, excepting in cases where articles are published in the transactions of the Societies before which they are read, or in which an abstract appears. Articles will be illustrated. Authors will be furnished a liberal number of reprints; or, if they so elect, an honorarium will be paid for original communications.

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ORIGINAL ARTICLES.

WHAT ARE THE QUALIFICATIONS NECESSARY FOR SUCCESS IN THE PRACTICE OF MEDICINE?[1]

BY FRANK BILLINGS, M.D., CHICAGO.

I desire to express my appreciation of the honor conferred upon me by the officers of the Mississippi Valley Medical Association in selecting me to give the address in medicine. The honor carries with it a responsibility which I also appreciate. Your president assured me I was at liberty to choose any subject I desired, which meant, of course, an additional obligation to you. Liberty, even the boasted liberty of this free and independent country, has its limitations—limitations which are often very marked.

The liberty which I enjoy to-day has its marked limitations, one of which is my inability to respond fully to the great opportunity afforded me.

I have chosen for a subject a question which may not interest you and those who have solved it, but which will still be, I hope, not devoid of interest.

The qualifications for success, in any walk of life, will depend in a measure upon the meaning of the word success. Not uncommonly success in life means to the majority of mankind the acquisition of wealth. Indeed, so universal is this in our own country that the possession of wealth, no matter how acquired, is sufficient to endow the possessor with the title of a successful man.

The accumulation of wealth by a medical man in the practice of his profession would indicate success of far greater import than

[1] Address in Medicine at the annual meeting of the Mississippi Valley Medical Association, at Put-in-Bay, Ohio, Sept. 13, 1901.

would the wealth of a merchant or other commercial man accumulated by persistent work; because the accumulations of the doctor would usually mean a mental endowment and professional skill which as capital earned wealth. The doctor who is fortunate enough to possess a handsome income is frequently not given credit for the qualities which enable him to be thus far successful. True, a strong personality, in a proper environment, may be supported by gross ignorance and still the individual acquire a big and lucrative practice. On the other hand, enviable knowledge, fine culture, and much practical experience in even good surroundings, when borne by a weak personality, may find but little financial reward.

A strong personality when unsupported by knowledge will invariably give but temporary success.

It has been my experience, and I am sure it has been yours, that ignorance will be surely discovered. You cannot fool all of the people all of the time in medicine, as you cannot in other walks of life. Ignorance will not remain hidden even though covered with a mortar-board and scholastic gown, or with a silk tile and Prince Albert coat. Unfortunately the converse is not true, for he who may be overfull of knowledge and wisdom may be unable to make the spark of his genius visible.

In one sense a good income is necessary to success. By good income I mean enough to afford the doctor and his family the comforts of life, and in addition a sum sufficient to purchase the necessary periodicals, books, instruments of precision in diagnosis, etc. This does not mean a large sum; indeed, a very modest one will be sufficient.

Without a living income, life is too full of anxieties to allow one to do good work. If one cannot afford the comforts of life for himself and family, the demon of discontent will certainly take up his abode with him, and a discontented man cannot perform creditable work. There is a saying that success brings success, and just as surely may one say that poverty begets poverty.

I claim, therefore, that the medical man who makes money by the practice of his profession has secured a measure of success. If he have all the qualities which go to make up a successful doctor he will continue to be a success. But if the getting of money, in the amount to be termed wealth, means success even temporarily, then the successful medical men of the world are few indeed.

Dr. George F. Shrady has estimated the average annual income of medical men in cities at about $2000, and in small towns or

villages at about $1200 to $1500. This is the average income and means that many receive a lesser amount. Very large incomes in medicine are rare, compared with the amount received by many of our legal friends and by commercial men. It is said that Sir Astley Cooper had an income of $100,000 from his practice. The late Wm. Pepper is said to have enjoyed from $50,000 to $60,000 annually from his work. A few surgeons of this day enjoy the reputation of incomes ranging from $50,000 to $100,000 per year.

The average physician probably receives less compensation for his services than any other member of society, when one considers the time and money spent in preparation, the responsibilities assumed, and the character of the service rendered to the patient. If money getting were the mark of success, surely the average income of the physician in both the city and the country would indicate failure of the large mass of the profession. To him who would enter the profession with the idea that he would make money there has been disappointment in the past, and the future outlook does not appear promising.

There are in the United States of America about 120,000 physicians and surgeons. That is one to about every 600 of the population. With the average annual mortality probably 1500 to 1800 die each year. The average annual increase in the population of the country for the last ten years has been about 1,000,000. This annual increase in the population would give room at the ratio of one physician to 600 people for about 1700 additional doctors annually. This, with the 1500 to 1800 vacancies by death, would afford locations for from 3200 to 3500 new doctors each year. The 160 medical colleges in the United States graduate nearly 6000 students annually, or about 2000 more than is provided for by the vacancies in the profession made by death and the places made by the natural increase in the population.

An overcrowded profession will limit the success of all. The best qualifications for success will be handicapped by a surplus of physicians, and the tone and standing of the profession will be correspondingly lowered.

Please pardon the digression, but I feel obliged at this point to protest against the maintenance by the profession of so many medical schools. Not one of them is too good, and many are so poor that they are marks of disgrace to the medical and lay communities in which they exist. It is an enigma that the profession of a State will permit the existence within it of a low-grade medical school, the sole purpose of which is to advertise its medical teachers. Its grad-

uates crowd upon them, limit the field of labor, take from, but never add to, the store of medical knowledge, and debase the good name of medicine in the estimation of the people.

The profession is perhaps powerless to influence the State legislatures to so modify the laws that a charter may not be obtained by any body of men who may conclude to organize a so-called medical school. The profession has the power nevertheless to influence and direct the inquiring medical student in the selection of a good medical school. Very few individuals undertake the study of medicine without consultation with a medical friend, often the family physician. Should he not, rationally, use his influence to maintain a high standard of medical education for his own benefit, if one regard it only from a selfish point of view? What a responsibility he assumes in advising the student! If a poor school from the educational point of view is chosen, he not only handicaps the medical student in his whole career, but if he have a conscience he must feel that he is responsible for lives sacrificed through the ignorance of the practitioner whom he has helped to inflict upon an unprotected community.

I did not intend to take up so much of your time with the questions so far discussed. I have dwelt upon the money side of medicine because it seems to me to deserve more consideration as an element of success in medicine than is usually admitted.

The pure medical scientist appears to despise money *per se*, but the scientist is usually not a practitioner. He nowadays has a living salary and is independent. The practitioner must be ever alert for the nimble penny with which to obtain the necessaries of life. With the practitioner it is bread first and science some time afterward, if at all.

There are other qualifications necessary to success in medicine, qualifications which are more important than money, and without which money is a negative quality.

One of the fundamental qualities is a proper education.

To-day the problems in medicine are so profound that a good preliminary education is necessary to enable the student to pursue the study of medicine rationally and successfully. A college or university education may not be necessary to fully prepare one for the study and comprehension of medicine, still it gives one the broad culture, the discipline of mind, which will add to the pleasures of life of the practitioner if it does not bring him material advantage. The time necessary to gain a thorough academic and medical education, supplemented preferably by a service on the

house staff of a hospital for one or two years, will require eight or nine years. The expense is relatively great, too, much more now than in former years, for the annual course in the best medical schools extends over eight or nine months. Again, the course of study is more difficult as well as longer, and while in former years a student could devote some time to outside work, which would help to support him, he would now sacrifice time which he can ill afford to omit from study. Happily some of our best universities and colleges have instituted courses which anticipate the medical college work. This enables the student who intends to study medicine to elect a course of study which better fits him for medicine, and at the same time he may elect and complete the fundamental branches of medicine, usually taught in the first year of the medical college. The student may thus save one year's time and still be as well or better prepared for his life's work than if he had taken the full academic course without thought of future medical study.

I think it a fair statement that the student who, at the cost of what may seem unsurmountable difficulties, obtains a thorough education, and especially of the fundamental branches of medicine, will rarely fail to make a success as a practitioner. On the other hand, deficient preparation preliminary to the study of medicine, and imperfect knowledge of the fundamental medical branches, he will never make up in after life. This will surely handicap him in competition with better prepared men.

The personal equation is important. Honesty, straightforwardness, sobriety, and a thorough appreciation of the rights of our fellow men are important elements, which, when absent, count against one in the battle of life.

The doctor of all men can least afford to be dishonest. If he practice dishonest methods with his patients in his professional intercourse, his fall will surely come. Miraculous cures, based upon false diagnosis; unnecessary operations performed for fancied or real ills; the assumption of knowledge of a condition of which he knows nothing; the attempt to perform operations for which he has not the knowledge, experience, or skill, unnecessarily jeopardizing life; or, in short, being anything but what he is, will in the end brand him as he deserves.

One who is dishonest with his patients will be equally dishonest in his intercourse with his professional brethren, and what a mistake he makes in this. It is a fundamental law in medicine that a doctor's reputation and rank in the world is fixed by his medical brethren.

The reputation one may gain in the lay community is at best but temporary if it is not supported by the respect of the medical profession. The medical man can gauge his professional brothers' knowledge, skill, and ability, and if one's work in medicine is of the quality to excite the commendation of our medical brothers, it will be reflected to the lay public. On the other hand, a reputation among the lay public will last only until a better man steps into the field, and the better man always comes.

Sobriety is a necessary element of success. Few of us are entirely free from the habitual use of tobacco and alcohol. That we would all be better off without them is probably true. Alcohol in excess, and the habitual use of opium, cocaine, and other harmful drugs, are absolutely prohibitive of success in any walk of life.

Strangely enough, statistics show that a larger percentage of doctors are addicted to morphine and cocaine than any other class of civilized people. Why medical men allow themselves to form the habitual use of drugs when they know the depressing, life-sapping, and ruinous results of the habit, is an enigma.

The successful doctor must be industrious, energetic, thorough, painstaking, and methodical in all he does. His student life continues as long as he practices medicine. He must be conversant with all things new as they appear in the medical world. He must know how to do all things which are included in his field of practice at all times. If at the right time he has acquired the proper knowledge of the fundamentals and has learned *how* to *work*, his evolution will occur unconsciously to him.

Many of us, I fear, have not these requisites of success. The life of the busy practitioner is a laborious one, full of trials and hardships.

The fatigue incident to work, often at night, as well as by day, too often leads to a habit of neglect of these elements so necessary to success. The country physician who has long, fatiguing rides, with exposure to all sorts of weather, may have some excuse for a habit of carelessness. But it is my experience that the practitioner in the city quite as easily falls into the habit of indifferent work.

One of the best evidences of a successful practitioner is the constant effort to make a *diagnosis*. This accomplished, the tyro may guide the medical or surgical care of the patient. And yet how few of us make an earnest effort to establish a diagnosis in every case which we see. Even the most simple physical examination is often neglected. My experience is perhaps not different from that of

many of you. I feel justified in making the statement that fully 50 per cent of the people who come to me the first time for an opinion state that they have never before been examined. This, too, in a class of patients who have been ill for months or years.

If this is true of ordinary examinations, what shall one say of the practice of most of us, in reference to the urine, the feces, the sputa, throat exudates, the eye ground, the external ear, the reflexes, the blood, etc. And still it is within the power of every one of us to do these things. The microscope and other instruments of precision are not expensive and are within the command of every one. Let him who must sacrifice his showy but practically useless and expensive electric battery, and get on, too, with a less number of surgical instruments for which he often has no use. Let him buy in place of them the things which will aid him to make a more precise diagnosis.

How many of us use the microscope daily? What a world of knowledge it reveals. Supplementing the clinical data and physical findings, it often reveals the key to the problem. The character of the urinary sediment; the presence of ameba, eggs of parasites, bacteria, etc., in the stool; the character of the bacteria in throat exudates and sputa; the number and character of the red and white blood cells — these are a few examples of what should make the doctor use the microscope daily.

It is true too, I think, that many physicians, who are conversant enough with the use of the microscope, believe or fear that the examinations for parasites, bacteria, etc., and blood examinations are beyond them. The fact is that like everything else the subject and operation are very simple and easily done when practiced daily. Everything which one does with facility is the result of much practice. One may have more dexterity than his brother, but practice in either case is necessary.

I hear it frequently stated that blood conditions are difficult to understand. The fact is we know a good deal about the morphology of the blood, but beyond that our knowledge is limited and indefinite. Therefore, it is possible for one who knows the technique of the microscope to learn all that is known of the blood in a few hours. Material for practice which will render the work steadily easier is to be found in every doctor's practice.

One cannot make thorough examinations successfully without keeping clinical records. Notes of the results of examinations make one more painstaking in the method of examination. Clinical data become useful, too, for purposes of comparison with other cases, and

furthermore furnish the physician with material with which to write interesting and valuable reports and papers. Thus he may add to the sum total of our medical knowledge. He may become a supporter of, and not altogether a pensioner upon, the medical treasures of the world. To be eminently successful, the doctor should be a good business man. In our day it is not necessary to neglect all the principles of the good business man to be ethical.

In our country it is the custom to name the fee and to accept it openly as payment for a service rendered. The custom of some other countries differs in this matter, just as did the custom of our forebears in this and in other conduct of life. The methods of the commercial world are reflected upon and modify our professional business methods.

The doctor must learn commercial business methods in reference to accuracy in keeping the accounts of his patients, and if he would be as prompt as his butcher, grocer, and tailor in sending the accounts for liquidation, he would be not a whit less ethical, and, on the other hand, would have prompt payment of his just due.

Give the patient your best efforts with the sole purpose of relieving him and without thought of the fee. But when the service has been rendered be as energetic to secure your fees as you were to relieve the patient's suffering. A layman's gratitude for suffering relieved is in inverse ratio to the time his account runs. In sufficient time a layman may so far forget past suffering as to feel injured that the doctor should present an account at all.

We are a forgiving, patient, sympathetic, and charitable profession. Nevertheless, I can see no charity in allowing the patient to take his own time, method, and estimate of the amount the doctor should receive. I have seen too many doctors' families left in a poor financial condition by the death of the doctor, who, good, patient, and charitable to his patients, was cruel to his own dear ones because he did not practice common-sense business principles.

There are many other elements of less importance than the ones I have named which modify the success of the doctor. I have, however, said enough.

In closing let me quote from an address made by Dr. John S. Billings, of New York, on the career of the medical man:

"I call that a successful career in which a man has done good work, the best of which he is capable, work in which he was strongly interested and which in itself gave him pleasure; work done unselfishly because he believed it to be good work, which ought to be done, and not as a means grudgingly made use of to

obtain wealth or power as the real object sought. It is a career which has secured a happy home with sufficient means to support it, although it may not have led to wealth. It has brought its pursuer the approval and friendship of those best acquainted with his life and work, although it may not have made him famous or given him decoration and honors; it has made his advice valued and sought by those who know him.

"The man who achieves such a career has not been dependent on his acquaintances for his happiness; he has not fretted and worried because his family, his friends, his associates, or the State have not recognized his merit according to his conception of it, for he has acted on the principle that he exists for their benefit and that they are not merely his appendages."

100 STATE STREET.

A SIMPLE MEANS OF DETERMINING A PRETENDED IMPAIRMENT OF VISION IN ONE EYE.

BY E. F. SNYDACKER, M.D., CHICAGO.

John M——, a policeman who claimed to have sustained an injury of the right eye, was sent to me that I might determine whether the eye had been injured, and if so the extent of damage done.

The history of the case is as follows: Last February the patient was struck over the superior inner angle of the right orbit by a live trolley wire; at the time he was wearing rubber boots, and to this circumstance attributes the fact that he was not killed. The shock was so severe as to cause immediate defecation, but not loss of consciousness. Since that time the vision of the right eye has become poorer, and although immediately after the accident there were no symptoms, beginning with a period about three weeks later there have been recurring attacks of severe pain in the eye; each attack is accompanied by injection of the eyeball and profuse lacrimation; exposure to wind, dust, cold, bright light, or the entrance of a foreign body, tend to bring on an attack. The attacks at times are so severe as to incapacitate the patient from work.

Status Præsens.—Patient is a tall, broad, healthy looking man, 38 years old; enjoys and always has enjoyed the best of health, and previous to his accident had never had an eye trouble. External examination discloses nothing of interest about the left eye, but shows the right eye to be injected, the injection being mostly of the posterior conjunctival vessels, apparently sensitive to light, moderate amount of lacrimation, no abrasions of corneal epithelium, no corneal anesthesia. Pupilary reaction to light and accommodation, as well as consensual reaction in both eyes normal. Vision in the left eye is 6–6, in the right 6–9. Snellen 0.50 read by the left eye from 7 inches to 20 inches, by the right eye from 7 inches to 12 inches. Fundus in both eyes is normal; the refractive media of both eyes are normal. Visual field of left eye is normal, of the right eye much contracted.

Irrespective of the question of damages which of course entered into the case, there seemed several suspicious circumstances about the matter. Recurrent attacks of pain in the eye, accompanied by redness, lacrimation, and photophobia, although the cornea and iris were perfectly normal, and the lessened vision and greatly reduced visual field although the media and fundus were intact, seemed rather anomalous.

Where an injury of an eye has been sustained by an electric shock, the usual lesions present are either cataract or optic neuritis followed by atrophy. After an accident of this kind I had never seen or read of an injury such as this patient had sustained. Moreover, the eye findings were not those which might have been expected in a patient suffering from a traumatic neurosis; the near point in the good as well as the injured eye was at the normal distance from the eye for a man of his age, showing that the accommodative power was not impaired. Furthermore, the visual field had none of the characteristics of a hysterical field, nor after repeated examination did the field show the fatigue spirals which might have been expected in a neurotic patient.

I now determined to test, if possible, the sincerity of the patient.

Ignorant people, if their attention is not called to the fact, often believe that even though both eyes are open and fixed it is possible to use one eye at a time while the vision of the other is excluded. Every oculist knows how frequently an individual with both eyes open and fixed on an object will say, "Shall I look at it with my right eye or with my left eye."

Having this in mind, while the patient was sitting at the perimeter, with his right eye gazing at the test object, his left eye behind the screen, without attracting the patient's attention to the fact that his left eye was being uncovered, at the same time admonishing him only to use the right eye, I raised the screen from the left eye, for which the field had been normal.

Looking at the test object thus, with both eyes, one of which confessedly was normal, the patient, believing that he was only using the injured right eye, pretended to see merely the same contracted field which perimetric examination of the right eye had previously disclosed.

This at once convinced me that I had to do with a malingerer, and that the injection of the eye had in all probability been artificially produced.

Had the patient been shrewder and better versed, this form of malingering would have been exceedingly difficult to detect.

A malingerer who pretends to be blind in one eye can easily be tripped up, but it is almost impossible to trap a skilful and consistent malingerer who claims that the vision of one eye has been somewhat impaired.

103 STATE STREET.

THE IMPORTANCE OF EXACT DIAGNOSIS IN CERTAIN OPERATIVE PROSTATIC DISEASES.

BY LOUIS E. SCHMIDT, M.D., CHICAGO.

There is scarcely any disease the treatment of which causes so many contradictory reports as in the case of retention of urine secondary to changes in the prostate gland. This is in some degree due to the unreliability of a few observers who do not possess the trustworthiness which we must regard as necessary for the definite determination of these questions. Yet it is a fact that conscientious and reliable surgeons report with one and the same method of operation the most contradictory results. The reason for this is very plain, although as a rule overlooked. We must remember that the prostatic urinary retention with one and the same result can be produced by manifold differing conditions of the prostate gland. Therefore we are obliged to ascertain which of these changes are present, and from this to conclude which method of treatment is best adapted to each particular case, and naturally at the same time to exclude all methods which could give an unfavorable result on account of the condition of affairs.

In order to obtain a clear view of the subject it is best if we classify all cases and group them in three large categories.

Urinary retention due to prostatic changes may occur, first, when we have alterations in the prostatic urethra proper; secondly, when the cause is just on the border between urethra and bladder; thirdly, when the pathologic changes in the gland impair or completely abolish the functions of the bladder.

First.—It is a well established fact that the prostatic part of the urethra sometimes becomes greatly obstructed, so that urination becomes impossible. It might be due to nodular growth of the urethral part of the prostate compressing the urethral walls, or causing a tortuous passage in the same. It is readily comprehensible, in these cases, that every operative interference which has to do with that part of the prostate within or adjoining the bladder would fail completely of favorable results. The next question is, then, how are these pathological conditions to be recognized? The examination per rectum shows these nodules just within the anus, covering or only partly covering the rectal surface of the gland. But these nodules are positively diagnosed with metal instruments *per urethram*. With this method we either find that we are unable to pass metal instruments, or that as they proceed toward the bladder they do so

by jerks, or, as one with a trained sense of touch describes this passage to the entrance of the bladder, "as if the tip of the instrument seemingly passes around corners." It is absolutely a necessity in order to obtain a good result to remove these mechanical obstructions. From the character of these obstructions the method of choice must naturally be the removal of these nodules by shelling them out by the perineal route.

Second.—The kind of obstruction between bladder and urethra—*i.e.*, that borders on the internal urethral orifice—may be either a symmetrical thickening or enlargement of the prostate as far as the parts encircle the internal urethral opening, or a partial enlargement of single lobes. All these changes have the same in common. the obstacle to urination is a more or less complete barrier practically separating the trigonum from the urethra. Operative success is to be sought for in a method by which this barrier is completely removed or is severed to such an extent that again free communication between the bas-fond of the bladder and urethra is made. We call the uniform thickening and enlargement of the prostatic margin a "collar-shaped" hypertrophy. A correct diagnosis without cutting open the bladder can only be made with the cystoscope. It is very important, however, to be absolutely familiar with the cystoscopic view in these cases. While in normal conditions the margin of the internal urethral orifice appears crescent-shaped, dark-red but translucent, the collar-shaped prostate presents itself in a cystoscopic view as follows: the crescent-shaped curve is either flattened to some extent or disappears entirely, so much so that the contour appears absolutely straight. The whole margin appears thick and gives the impression of rigidity; the color is very dark and opaque. The ureteral orifices appear close to its margin. A little trick used in this examination makes this uniform enlargement of the prostatic margin more evident—*i.e.*, if we lower the funnel of the cystoscope as far as possible and withdraw the beak to the utmost a very dense shadow is thrown in the trigonum. If we confine ourselves in such a case to the typical Bottini incision, success will always be incomplete. It is necessary to make a large number of incisions into this barrier, or we have to make a complete excision of this collar after opening the bladder.

Cases of enlargement of the individual lobes allow of the best results with the Bottini method provided we fulfil two conditions: First, that we are fully informed about the exact localization of this enlargement, and secondly, that we secure exact information of the extent of the lobes in their frontal diameters. To a certain limited

extent we gain this information by rectal examination, but never completely. This examination can tell us in a general way that the prostate, or a certain part of it, is enlarged, but it is impossible to state by this examination which lobe is enlarged and how far the same protrudes into the bladder, and which of these protrusions causes in fact the obstacle. Again, the most reliable method to gain the exact information about these conditions is a cystoscopic examination. This examination is supported and completed through an added exploration by means of an elastic olive-tipped bougie. The enlarged prostatic lobe presents itself through the cystoscope in this way: in place of the crescent-shaped curve appears a convex curve at the internal urethral orifice. If there is only one lobe enlarged a concave curve of the balance of the urethral margin persists. In case several lobes are enlarged, each of these enlargements corresponds with a convex outline, while between these protrusions deep depressions are to be seen. Especially do enlargements of the median lobe give a very characteristic picture, because we see behind this lobe a consecutive deepening of the trigonum. At the same time I would like to state that the cystoscope places us quite often in a position to exclude an operative step at this particular time because of uniform inflammatory and edematous swelling of the prostate. In such a case the urethral margin is uniformly swollen and the blood-vessels obliterated. If there is an inflammatory edema present then we find the mucous membrane pale and the trigonum arranged in thick, clumsy folds. Sometimes we see on top of these edematous folds a few small globules which are perfectly translucent, and are nothing but circumscribed edema in the middle of a generalized edema. It is important to mention that once in a while we observe a transverse folding of the trigonum which is not of an inflammatory origin. It is very important to be informed of the existence of these folds in cystoscopy, because if we are aware of their presence we will avoid catching the beak of the Bottini instrument in them — an unfortunate accident which has repeatedly led to fatal paracystitis.

The olive-tipped bougie gives some information as to whether the internal urethral orifice is impaired. Furthermore, this instrument enables us to gauge with precision the extent of the obstacle which is furnished by enlarged prostatic lobes. It is a well known fact that it is imperative for the success of a Bottini operation that the incisions are long enough, so that the barrier is completely severed. The usual rule is that we ought to continue the forward propulsion of the glowing blade as long as the resistance of the

hypertrophic prostate tissue is felt. In reality this sensation is scarcely reliable, as the operator entirely depends on the *estimate* which is founded on more or less experience. But if we use an olive-tipped bougie following the cystoscopic examination we gain more exact information about the frontal extent of the lobe. The shaft of the bougie is graduated in the same way as the shaft of the Bottini instrument. We measure now the distance from the point where the olive enters the obstruction to the point where it passes into the bladder cavity and becomes freely movable again. In withdrawing the olive we measure the distance from the point where the olive is caught until it is freed again. The intermediate figure gained by these two distances which are read from the graduation of the shaft gives a fairly exact result and corresponds to the length of the entire posterior urethra.

We have still another procedure. This gives us the exact length of the parts of the lobes which extend into the bladder; it really corresponds to that part of the prostatic urethra which is within the bladder. If we introduce a sound with a short beak when the patient is in the horizontal position and catch the anterior wall, or the part immediately back of the symphysis, it must correspond to the true location of the internal urethral orifice, unless we have to do with tumors or "collar-shaped" hypertrophy. Now when the beak is in this position we find in case of lateral lobe enlargement that we can scarcely turn either to the right or left. To do so we must first push the beak into the cavity of the bladder; then, say, we turn the beak 90 degrees to the right, and if we wish to measure this side we withdraw until the beak becomes fixed. Having noted the difference on the shaft of the instrument we read off the length, which corresponds to the length of the lobe which protrudes into the bladder. This may be done at every angle. The most important are those of 135 degrees and the posterior measurement. In the latter case we must remember that it often corresponds only to the connecting bar of the lobes, and for this reason does not represent prostatic tissue; and therefore the posterior incision cannot be made as long as the measurement would indicate. It only does so when other means of diagnosis have shown us that this length is prostatic tissue. Just here the depth of incision is of the greatest importance; an error may lead to fatal results. The depth of incision when making the lateral incision depends on the size of the lobes.

Another method to find out during the operation without withdrawing the Bottini instrument whether the incisions are of sufficient

length or not, is the use of Freudenberg-Bierhoff's modification of the incisor. This instrument is a combination of a cystoscope with a Bottini incisor. It allows us to exactly place the incisor at the desired point. Although it is impossible to control the incision during the progress of the blade, we can do this at once after the incision has been made. In order to do this we turn the beak of the incisor to one side and turn on the current for the lamp, and in this way examine the incison. If the incision severs the desired lobe entirely we see the incision running from the trigonum up into the urethra, but should the lobe not be completely cut through we see that the incision ends bluntly inside the particular lobe. In this case the incision must be completed until this distal end shows the same wedge-shaped pole as the central end which points toward the trigonum.

Another important task is accomplished by the cystoscope in enabling us to make the diagnosis of pedunculated lobes. These pedunculated lobes, even if they are not of any considerable size, act in relation to the internal urethral orifice like a ball and socket valve. This conception is supported not only by observation on cadavers, but also by clinical observations of possessors of such lobes. The micturition starts properly, but all of a sudden the stream is interrupted, until the patient by certain movements which he learns by experience again succeeds in obtaining a free stream. Sometimes it is possible in patients whose vesical muscular coat is not yet exhausted to state the remarkable fact that after the stream is interrupted they are able to urinate again if they lie down, in most cases placing themselves on one side.

It is obvious that every attempt to cure such a case by a Bottini operation will end in failure. In this statement I am borne out by a recent German publication. The only possible cure is extirpation of these lobes with their pedicles. If these lobes are very small the operation with a cystoscope will not offer any difficulties. Larger lobes equipped with a substantial thick pedicle are to be removed through a suprapubic incision. It is very important to gather as many points as possible in regard to the functional capacity of the bladder if we want to give a reliable prognosis in the Bottini operation. Cystoscopic examination will give us information whether we have to deal with grave cystitis, or whether the muscular coat of the bladder is already impaired by the formation of cells and pockets. Catheter experiments will prove how much of the contractile power of the bladder is still present. We find patients where a spontaneous flow of the bladder contents after introduction of a catheter does

not take place any more if the patients are in a recumbent position. We have to exert manual pressure upon the abdomen if we desire to empty the bladder. The bladders of this type have lost their contractibility. In these cases the prognosis will be a bad one in certain directions, although it has to be admitted that sometimes the bladder regains its contractile power after a free passage has been formed.

Third.—Another cause for the obstruction to the flow of urine by changes to the prostate is the formation of large prostatic tumors which grow into the cavity of the bladder. The clinical symptoms of disturbances of micturition do not differ from those produced by common prostatic hypertrophy. But so far as surgical interference is concerned it is extremely important to diagnose the existence of such tumors. In rare instances one might succeed in getting these tumors between the fingers by bimanual palpation and so make a diagnosis. This, however, will only be possible in very thin individuals with relaxed abdominal walls. An examination under general anesthesia may only in extreme necessity be resorted to, as such patients usually do not stand general anesthesia well. But it is possible to make this diagnosis by other means, or at least to arrive at conclusions very nearly approaching certainty. The cystoscope furnishes in such cases no direct evidence, but it serves by exclusion. If we introduce a cystoscope in such a bladder we only see a dark-red flat shadow, although the beak is freely movable, and this even in cases where the tumor is still of a moderate size. The tumor on the anterior wall of the bladder is always in close contact with the cystoscopic window. If we encounter such a condition we follow with another proceeding. We fill the bladder with water to the limit and mark the percussion outline on the abdominal wall with a colored pencil. While the quantity of the fluid is in striking disproportion to the size of the bladder which is marked out by percussion, we see after the fluid is withdrawn that percussion shows the bladder outline to be still above the symphysis.

This examination and its results become more distinct by introducing a rubber balloon into the rectum in order to push the bladder toward the abdominal wall. Furthermore, we can notice that emptying the bladder by means of a catheter will never result in yielding such a quantity of fluid as we would expect judging from the extent of the bladder. This distention of the bladder can be made manifest by the observation that elastic catheters of considerable length can be used to their entire length without withdrawing additional urine. These patients suffer from all the usual symptoms

of bladder tumors. The warmth of their bed gives them a permanent sensation of fulness, pressure, and weariness in the vesical region. The contact of the bladder wall and the tumor evokes pains; after each urination a clonic spasm of the bladder sets in. It is evident that a radical cure in such cases can only be achieved by a complete removal of such a prostatic tumor by a suprapubic operation. If the general condition of the patient should not allow of such interference, nothing would be left except to establish a permanent fistula. If we consider the mechanical conditions of such a case, it goes without saying that such a fistula can only be an abdominal one.

I am firmly convinced that if the suggestions which I have given in this paper are made use of every time before operative interference, and carefully considered, the diversity of opinions concerning the different radical operations for disturbances of urination due to prostatism will disappear, and at the same time much better and more definite results will be achieved.

AN ANOMALOUS FORM OF TABES—A CLINICAL LECTURE.

BY HAROLD N. MOYER, M.D.,
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The patient whom we present this morning illustrates some of the difficulties in the nomenclature of nervous diseases, and how certain progressive degenerations of the nervous system are at one stage of their development clinically distinguished by one term and later by another.

The patient has had an insidious trouble which began seven years ago by an impairment in the strength of the lower extremities and a slow progressive incapacity in locomotion. He is a musician, 40 years of age, and has been married for eighteen years. The family history is negative, and there is no history of injury or severe illness.

He has a venereal history which is not uncommon. In 1893 he had what his physician termed a chancroid. Notwithstanding the diagnosis he was given constitutional treatment for three months. So far as we can now learn, there were no secondaries excepting that two years after the disappearance of the chancroid there was an eruption of uncertain character in the genital region, which disappeared in a few days without treatment. He has one child. His wife has had no miscarriages. He has been a liberal user of tobacco and has indulged very freely in alcoholics, especially beer.

His present trouble came on seven years ago, or one year after the venereal sore. When he first noticed it he was on a long march, following his occupation of musician. He stepped from the ranks to the sidewalk, seemingly overcome by the heat. He had to lie down on the sidewalk, but was not taken to his home. Later he overtook the parade in which he had been marching, and continued to play during the evening. For a week after this attack he did not feel well. Three months later there was a slight incapacity in the use of his legs, a condition which has steadily increased. At first the incapacity was slight; he was able to march in parades unless they were exceptionally long. Three years ago the weakness and stiffness in the knees had so far increased that he had to give up all street parades. Last winter a numbness in the left hand developed, which later appeared in the right. He has been a violin player as well as a cornetist, but in the last few months has had to give up the use of the violin as he cannot finger the strings with his left hand. During the last three or four weeks he has had some pain in

his head, which comes suddenly, persists for a few moments, and then disappears. For a short time prior to three or four months, he noticed occasionally double vision. Aside from this he has no consciousness of any disturbance in vision and can see to read his notes as well as he ever could. His appetite and general health are excellent. He has no pains in the trunk, and there is no disturbance in urinating.

There is marked difficulty in locomotion. He walks with a shuffling gait, with a distinct tendency of the feet to cling to the ground or to cross one in front of the other. There is a distinct toe-drop, and the inner side of the toe of his left shoe is worn away and has to be frequently repaired. The same is true of the right foot, but to a less degree. He can walk about five squares and then has to stop and rest. There is not, nor has there ever been, any pain in the lower extremities. Sometimes there is a dull, heavy feeling in the back. He has noticed this dragging of the feet for three years.

Station is fair. With the feet close together and the eyes closed there is slight swaying, but it scarcely amounts to more than is found in people who are weak. He can walk eight or ten steps with the eyes closed without showing much uncertainty in his movements. There is no incoordination of the upper extremities.

Both anterior tibials are partially paralyzed. The left foot can be flexed upon the leg against its own weight, but very slight pressure overcomes the action of the left tibialis anticus. The right anterior tibial is affected, but not to the same degree. The calf muscles are weakened, and the hamstring muscles evidently have less power than they should. The quadriceps is less affected than any muscle in the lower extremities. There is some paresis of the forearm muscles, his grasp being relatively weak, and both supinators are weakened. The biceps, triceps, and shoulder-girdle muscles are strong.

The knee-jerks are exaggerated. There is a suggestion of quadriceps and ankle clonus—that is, there are two or three jerks that follow sudden stretching of the muscle and flexion of the foot. The Achilles, triceps, and jaw jerks are present and somewhat increased. There is a suggestion of increase in the abdominal reflexes, but it is hardly sufficient to say that it definitely exists. The cremaster reflex is marked, but not more so than in patients who are not suffering from organic trouble. The toe phenomenon of Babinski was quite uncertain; sometimes there was flexion, and again extension.

Sensation of head and chest is quite normal, but over the lower abdomen and loins an area is found in which the tactile sense is impaired. Nowhere is it lost, but the quickness of response to light touches, which are easily perceived over the chest, causes no response. The feet and hands present no alteration in temperature or tactile sense, but the pain sense is somewhat diminished. There is marked anesthesia, particularly in the left arm. The same is present in the right, but not so marked. Severe pressure on the left ulnar nerve gives not the slightest tingling in the ulnar distribution nor sense of pain.

In considering this man's history we first take up the question of venereal infection. It is evident that the physician who treated him at the time that the venereal sore was contracted looked upon it as a chancroid, but he probably had some doubt about it, for the patient was given constitutional treatment for a period of three months. The eruption which appeared on the genitals nearly two years after the primary infection is to our mind quite conclusive of the nature of the trouble. The first difficulty in walking occurred three months after the alleged sunstroke, about eighteen months after the primary infection. It is evident that if we had been called upon to make a diagnosis of his case at that time we should have pronounced it syphilis of the spinal cord, and such would have remained our diagnosis for a period of three or four years. After that he began to have the distinct ataxic gait and exaggerated reflexes, and the increasing incapacity of locomotion, and probably slight incoordination of the lower extremities. At this time it is probable that a diagnosis of ataxic hemiplegia, in the sense that this term is used by Gowers, would have been made.

During the past three months he has noticed an increasing want of capacity to use the hands, which shows an ascending degeneration. This associated with diplopia, pains in the head, ulnar anesthesia, and the uncertain zone of tactile impairment around the abdomen, would strongly suggest tabes. We can easily predict that as the disease advances, as it is certain to do, there will be a progressive diminution and loss of the exaggerated knee-jerks. Later there will be a failure of light reaction in the pupils, with perhaps impairment of vision. The anesthesia will become more marked and the defect in station increase. When this stage is reached the case will be readily classed with the ordinary tabetics. It will thus be seen that three different diagnoses are possible in the different stages of this malady. As a matter of fact a syphilitic endarteritis probably was the original trouble, located in the lumbar portion of the cord.

This remained with very little change for a number of years, but there was gradually set up a secondary process which can be called tabes.

In the treatment of this case we shall be guided by the fact that he is still within eight years of the time of primary infection, and the benefit which is to be derived from the iodides or mercurials is directly proportionate to the time which has intervened since the primary infection. We shall therefore give him increasing doses of iodides extending for a period of two or three weeks. We shall begin with thirty grains three times a day, and increase to sixty or eighty grains in each dose. If this is followed by some amelioration in his trouble, the treatment may be resumed after an interval. If two or three weeks of this treatment result in no improvement, it is not well to continue it, as the iodides only serve to lower nutrition and likewise the quality of blood without corresponding benefit. Inunctions of mercury will be used at the same time.

BOOK REVIEWS.

PROGRESSIVE MEDICINE. Edited by H. A. Hare, M.D., Assisted by H. R. M. Landis, M.D. Vol. III, September, 1901. Philadelphia and New York: Lea Brothers & Co. 1901.

This quarterly digest of advances and discoveries in the medical and surgical sciences will always be welcomed by the practical physician. The initial article of the current volume is that on diseases of the thorax and its viscera, including the heart, lungs, and blood-vessels. It is contributed by William Ewart, and is one of the best abstracts of the current literature that we have seen. The writer begins with a discussion of croupous pneumonia. It is shown that since the advent of influenza in 1890 the death-rate from pneumonia and the case frequency have risen throughout the entire civilized world. In Liverpool the increase is from 7.6 to 9 per cent of all other deaths. In discussing the diagnosis and prognosis, we are reminded that in most cases the physical signs in the early stages are rarely developed. The amount of chlorides in the urine is regarded by Huchard as of much prognostic significance; in the writer's experience an almost total absence of chlorides until the height of the disease is the rule, and is not a bad omen. In the article last year the same writer practically rejected the curative agents that had been recommended upon an empirical line. The bacteriological origin of pneumonia, now clearly recognized, points to what will ultimately be the treatment of this disease. Whether it would be by a purely chemical antidote or by biochemical agents remains to be determined. During the past year neither the antiseptic nor the antipneumococcic plan has absolutely established its claim, in spite of Sebring's continued advocacy of sodium salicylate and of isolated results obtained with antipneumococcus serum. "No one now holds that any of the potent drugs, such as opium, digitalis, etc., so readily fatal to a highly organized nervous system such as ours, takes any effect whatever upon the microbes or the pulmonary tissue, nor that alcohol or food, however plentifully supplied, will avail. Most of us have for the present settled down to an indirect or neutral treatment, free from suspicion of doing harm." In speaking of the treatment of phthisis the writer calls attention to the varying pathology underlying these cases. He makes no special mention of the open-air treatment, because there is so much being said about it. "This crusade is serving most effectively the general cause of hygiene, by letting light and air into every hotbed of disease and by training the uneducated to sanitation. Before long open air may be the indispensable treatment for all infective diseases, such as enteric fever, typhus, etc., and the 'closed-room' treatment, suitable for a minority of diseases, may become the exception."

Dermatology and syphilis are discussed by William S. Gottheil. In speaking of alopecia, the writer refers to the amount of work which has been done, particularly the paper of Jackson, reporting 300 private cases. His experience is to the effect that dandruff, heredity, and mental worry are the chief causes in the order named, and that at least two of them must be present to produce baldness; that dry seborrhea is sometimes present with patients who retain their hair to a late age; that baldness is increasing in frequency, and that it is

in part due to the disuse of oils and fats, thus failing to replace the natural oil that has been removed by a strong alkaline soap. In referring to the treatment of carbuncle, reference is made to the use of liquid air, as recommended by A. C. White. This substance is not available in medicine, and Birdwood's method of spraying the part with 1-to-40 carbolic lotion is recommended. In addition to the spray, the pure acid is thrust into the involved tissues upon pointed pieces of wood. Incision or curettage is reserved for the cases that do not do well under this milder treatment. As yet but little advance has been made in the identification of the cancer parasite, though much has been done, particularly in the treatment of cutaneous cancer, both by the *x*-ray and Finsen's phototherapy.

W. G. Spiller contributes the article upon diseases of the nervous system. There is an extensive discussion on brain tumor, including cerebral abscess. There is an excellent *résumé* of the literature of diseases of the spinal cord, and of diseases of the peripheral nerves.

Richard C. Norris contributes the closing chapter upon obstetrics. He epitomizes the work of the year by the statement that nothing which can be characterized as epoch-making in the department of obstetrics has been presented. The literature abounds with reports that verify much of the research of recent years. The technique of antiseptic midwifery has been simplified, and the range of surgery, as applied to the complications of pregnancy, labor, and the lying-in period, while widening, has been characterized by a rational conservatism. Curettage of the puerperal uterus, symphyseotomy, puerperal hysterectomy, are surgical procedures gradually finding their appropriate places. Belief in the toxic theory of eclampsia has steadily grown, although the exact etiology of that disease yet remains a mystery. Medullary narcosis in obstetric practice has been exploited, and its dangers and limitations have been determined. The enthusiasm aroused by serum therapy has waned. Along the lines of pathological research, the most important work has been upon the placenta and upon the fetal membranes. Nothing new has been noted in the bacteriological studies of the puerperal tract, before and after labor, but the wheat and chaff of the important work of recent years are gradually being separated.

A Treatise on the Acute Infectious Exanthemata. By William Thomas Corlett, M.D., L.R.C.P. Price, $4.00. Philadelphia: The F. A. Davis Co. 1901.

In his preface the writer tells us that the present volume is an outgrowth of the need of the beginner in the practice of medicine. He has a keen recollection of the difficulties, not to mention the discomfitures, in his early practice in the diagnosis of the acute exanthemata. The difficulties in the way of clinical and bedside demonstration in such dangerous and highly communicable diseases as variola, scarlatina, and rubiola render it impossible to impart sufficient instructions to undergraduates. The truthfulness in detail of the photographic productions which the author has used in his lantern slide demonstrations has suggested the advisability of a separate work upon this important group of diseases. The work aims to be practical, and to present the subject in the light of modern research.

Chapter I deals with the early history of the exanthemata, among the first of which to be recognized was that of smallpox, which was known in remote

periods. The Chinese records show that the disease was described in 1122 B. C. In Hindustan the disease is likewise of remote antiquity.

The clinical description of smallpox occupies the first 127 pages; it is illustrated by twenty plates showing the different varieties of the eruption and types of vesicles. These illustrations, some of which are in colors, bring out in striking detail the character of the eruption, and contribute, so far as it is possible for illustrations to do, to a recognition of the disease. There is an exhaustive discussion of the pathology, prognosis, and treatment of the affection, and also a description of the manner in which the contagion is propagated.

There is a good description of vaccinia and its complications. The question of syphilis being spread by vaccination has practically been settled by the use of bovine instead of humanized virus. At one time it was extensively discussed, and furnished not a little ammunition to the antivaccinationist. Even in the days of arm-to-arm vaccination the possibility of spreading syphilis by this means was quite remote, where care was exercised. In speaking of the bovine lymph, the writer says that it has been preserved in glycerin and used in the form of a glycerinated lymph in Germany and Belgium for many years.

The discussion of scarlatina is an excellent contribution to our knowledge of that disease. The writer has gone into the question of the pathology of the complications quite fully. He leaves us in doubt as to his own views regarding the bacteriology of the affection, though the work of Class, Baginsky, and others is mentioned.

The work closes with a differential symptomatic chart of the exanthemata, a special formula for the disinfection of clothing and the surface of the body, and general directions as to the care of the infectious diseases.

The work, on the whole, forms a most excellent monograph, containing as it does forty-two plates, many of which are in colors and which adequately illustrate one of the most important departments in medicine.

AN INTERNATIONAL SYSTEM OF ELECTROTHERAPEUTICS. By Numerous Authors. Edited by Horatio R. Bigelow, M.D. Second Edition, Thoroughly Revised and Brought up to the Present Day: Edited by G. Betton Massey, M.D. Price, $6.00. Philadelphia: The F. A. Davis Co. 1901.

The first edition of the International System of Electrotherapeutics was published in 1894, and the present extensive volume consists of a reprint of most of the original articles which appeared in the first edition, to which have been added a chapter on the treatment of aneurism, the use of the Roentgen rays, and the treatment of cancer by cataphoresis of mercury. The work opens with a short *résumé* of the history of electrical science and a reference to the necessity of special education in electrotherapeutics; then follows an exhaustive discussion of electrophysics and electrophysiology. This includes such topics as animal electricity, the effect of different currents upon the human body, and a chapter on general diagnosis and cataphoresis.

The special departments of the work deal with the use of electricity in gynecology and obstetrics. There are chapters on the use of electricity in diseases of the brain, spinal cord, peripheral nerves, and the neuroses. The disorders of the abdominal and thoracic viscera are extensively considered, and there is a short chapter on electricity in diseases of childhood.

Electrosurgery includes a chapter on ophthalmology, the use of electricity

in diseases of the nose, pharynx, and larynx, and one on the treatment of saccular aneurism. The use of electrolysis in stricture and hypertrophy of the prostate is discussed by Newman, and cancer of the uterus by regional sterilization is described by Massey. The use of electricity in diseases of the skin and in facial blemishes forms the closing chapter in the book.

The work is a reprint of a composite production, and many of the chapters are old. Some of the writers are dead, notably P. S. Hayes, who contributed the original article on electricity in diseases of the skin. There has not been that thorough revision of the different departments of the work which would bring it down to the present time. The paper is poor, the plates from which it is printed are much worn, and the illustrations seem to have done service for a great many years in numerous capacities. In most of them the outlines are very much blurred.

Mosquitoes. How They Live; How They Carry Disease; How They Are Classified; and How They May Be Destroyed. By L. O. Howard, Ph.D., of the Department of Agriculture. New York: McClure, Phillips & Co. 1901.

The mutations of science are nowhere more strikingly illustrated than in the practical importance which has been attached to the life-history of the mosquito. Prior to a very recent period no one but an impractical scientist would ever have thought of taking any interest in the structure, family history, or diseases of this insignificant but industrious insect. Dr. Howard in his book has gathered together practically all that is known of the life-history of the insect, and we doubt not that it will be read with especial interest by those interested in hygiene and preventive medicine. The mosquito is generally regarded as a pest, but in the eyes of a trained naturalist and one who is in love with the subject he is evidently an object of remarkable interest. We can readily understand that the mosquito as seen through the microscope may present points of interest quite different from those which are prominent when he settles upon one's forehead in the middle of a summer night. The work of Dr. Howard is a valuable contribution to the subject of preventive medicine, as it is now generally accepted that two of our most deadly epidemic diseases are conveyed by mosquitoes.

The American Illustrated Medical Dictionary. By W. A. Newman Dorland, A.M., M.D. Second Edition, Revised. Large 8vo. Price, $4.50, net. Philadelphia: W. B. Saunders & Co.

In our review of the first edition of Dorland's dictionary we gave an exhaustive description of the method which was followed in its preparation, and we predicted for the book an early and favorable reception by the profession. The fact that a large edition has been exhausted in eleven months confirms our favorable judgment. In preparing the second edition the author has added upwards of 100 new terms which have appeared in medical literature in the last few months.

The arrangement of the text is excellent and permits of easy reference. Each word is printed in heavy black type, the definition following it in smaller type. In each instance the pronunciation of the word is given, and where it is derived from another language it is stated. The definitions are short and concise. There are no radical attempts at spelling reform, which, when carried to

a certain limit, produces such an irritating want of familiarity with our common words. The diphthong is suppressed, and the final "e" in most cases is left off. There are a large number of tables in which correlated facts are grouped, such as columns, cysts, glands, serums, etc.

A Text-book of the Practice of Medicine. By James M. Anders, M.D., Ph.D., LL.D. Fifth Edition, Thoroughly Revised. Cloth, $5.50, net. Philadelphia and London: W. B. Saunders & Co. 1901.

The work of Anders has already reached its fifth edition, and that within a period of four years. This is a phenomenal record even in this period of rapid book-making. Former editions have been favorably reviewed in these pages, a verdict which must be repeated regarding this last edition. The author in his preface says that the original purpose to make the book preeminently practical has been closely adhered to. The most thorough and extensive changes have been made in connection with the group of infectious diseases. The etiology and mode of transmission of malaria and of yellow fever have been almost entirely rewritten. Certain affections of growing importance, as diphtheritic dysentery and parasitic hemoptysis, have been recast. A few new articles have been introduced, *e.g.*, fatty infiltration of the heart, streptococcus pneumonia, and acute interstitial nephritis. In yellow fever the writer accepts transmission by mosquitoes as having been proven, though he does not speak of it as the only means of transmission, but says that it has been definitely shown that the disease is not transferred by fomites.

Transactions of the American Electrotherapeutic Association. Price, $2.00. Philadelphia: The F. A. Davis Co.

The Transactions of the American Electrotherapeutic Association includes the proceedings of the ninth and tenth annual meetings held in September, 1899, and September, 1900. The volume contains the list of officers for the two years, together with the roster of the association and the minutes of the meetings. In addition, there are forty-five papers, which make up the body of the work, dealing with the various forms and applications of electricity in the treatment of disease. Many of these papers have been published in the current medical periodicals, and some have been referred to in the abstract department of Medicine. Together they form an excellent addition to our knowledge of electrotherapeutics, and it is a distinct advantage to have them gathered together in a single volume, which permits of easy reference.

Manual of the Diseases of the Eye. By Charles H. May, M.D. Second Edition. New York: William Wood & Co. 1901.

The first edition of May's work appeared in August, 1900. It was an effort to condense what is practically useful for the student and general practitioner within the limits of a small volume of 408 pages. The restriction in size was accomplished by omitting detail, extensive discussion, and accounts of theories and rare conditions. At the same time the vital facts of ophthalmology are presented with sufficient clearness to admit of their being understood by the student. The book is not intended to fill the place of the more extensive works on ophthalmology, but to furnish a foundation for a more extended study of the subject.

LEADING ARTICLES.

PRACTICAL SUGGESTIONS UPON THE TREATMENT OF RECTAL DISEASES.[1]

Constipation is a symptom of many conditions, and not a disease in itself. What is constipation in one individual is not in another. The frequency and abundance of the stools depend upon the amount and character of the food taken, and upon the completeness of digestion and assimilation. The only proper test of constipation consists in measuring the amount of food taken and the fecal discharges during a given period. This is impractical in a large majority of cases, but it is easy to determine the length of time which it takes food to pass through the intestinal canal, and if this period is markedly extended, it may be inferred that the intestinal peristalsis is below par. This constitutes one type of constipation. Another type is that in which the tardiness of the fecal mass is due to its dryness and hardness; and a third type is due to displacements, sacculation or contraction of the intestine at some point, whether it be the rectum, sigmoid, or colon.

The treatment of constipation upon any one theory—that it is always functional, always nervous, or always due to local causes—is a great mistake. There is scarcely an organ in the body that does not influence the movements of the intestine. Hence, the treatment of a case of constipation implies a wide application of all the resources of medicine. Heredity, age, sex, and occupation, as well as diet, contribute many causes of the disorder. Circulatory disturbances in the glandular organs of the abdomen, as well as local and congenital malformations in some portion of the intestinal canal, the presence of neoplasms, or displacements of the organs together with thickening of Houston's valves, spasms and hypertrophy of the sphincter, and excessive hemorrhoidal development, as well as the presence of foreign bodies, are some of the important causes of this universal symptom.

The frequency with which rectal or sigmoidal diseases produce constipation is not appreciated by the profession in general. While all of the conditions above mentioned may have their influence, the majority of constipations are due to functional or organic diseases of the colon, sigmoid, and rectum.

[1] James B. Tuttle: *International Journal of Surgery*, September, 1901.

Colitis may be the cause or the result of constipation, depending upon the sequence of events in a particular case. Displacement of the transverse colon, along with gastroptosis, is a frequent cause, which medical treatment does little to overcome. Displacements of the sigmoid are among the most frequent causes of constipation. Whatever prevents the straightening of the sigmoid in the abdominal cavity and the consequent obliteration of the flexure at its junction with the rectum, and whatever increases the acuteness of this flexure, interferes with the normal passage of the fecal masses. In women, pelvic inflammations, together with irregularities in the size, shape, and position of the uterus and its appendages, all interfere with the regular movements of the sigmoid, often binding it down in the pelvis and sometimes increasing the flexure; at other times pressing upon it and diminishing its caliber; and at others holding it by adhesive bands thrown out from one organ to another or to the pelvic wall.

Constipation in both women and men, due to adhesions, is frequently accompanied by tardiness and difficulty in the bowel movements, pain in the back, shooting pains in the legs, and the general symptoms of autointoxication (Fig. 1).

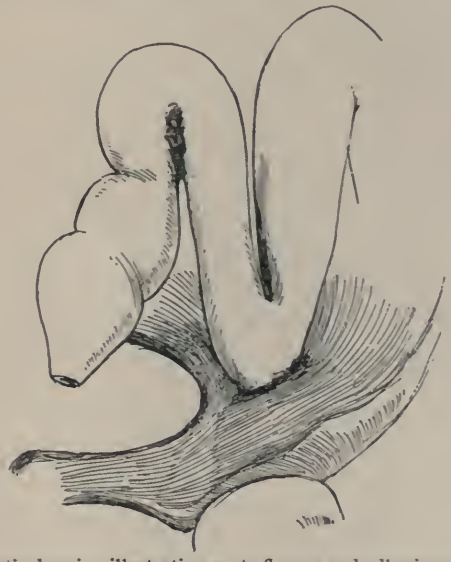

FIG. 1.—Schematic drawing illustrating acute flexure and adhesions of the sigmoid.

The treatment of this condition consists in stretching or breaking up the adhesions which bind the sigmoid down: the passage of a long Wales rectal bougie through the sigmoid, and leaving it in

position five to ten minutes, and before withdrawing it flushing the intestine with cold water. The flexibility of the bougie lifts the sigmoid and stretches the adhesion. Where it is possible to introduce the long Kelly tube, the same object is accomplished, namely, a lifting of the sigmoid and an obliteration of the flexure. This should always be done with the patient in the knee-chest position.

In some cases excellent results are reached by pneumatic inflation, using Laws's sigmoidoscope. Sometimes the tube can be introduced with this instrument without coming in contact with the rectal walls.

In cases where the adhesions are strong, none of these means will effect a cure, but it is necessary to open the abdomen, either through the vaginal canal or the abdominal wall, and break up the adhesions. In these cases the sigmoid should be sutured to the anterior abdominal wall in order to prevent its falling back and the adhesions reforming.

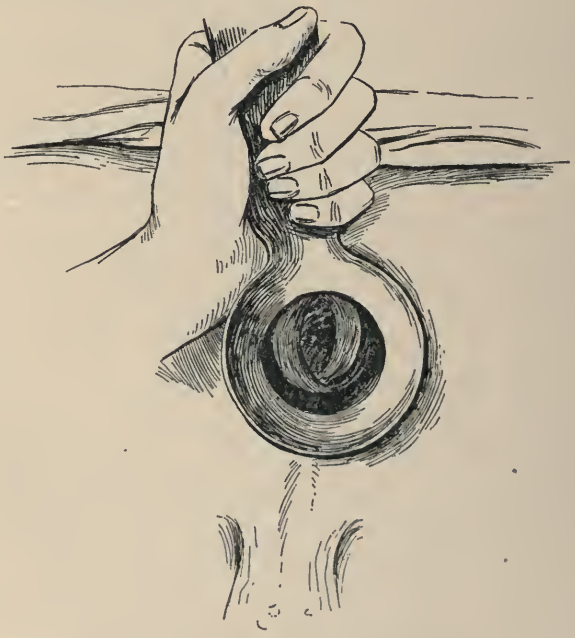

FIG. 2.—Valves as seen through proctoscope.

Houston's valves (Fig. 2) may be a cause of constipation, though a large number of cases of abnormally developed valves may be found in which there is no constipation whatever. Likewise, there

are a large number of individuals whose valves are normal, or less than normally developed, who suffer from constipation. In a number of cases in which there was constipation, associated with thickening of the edges of the valves, operations by Pennington's and Martin's methods gave no improvement. The frequency with which these valves account for constipation and the success claimed from their removal are not borne out by a wider experience.

Fissure and spasmodic stricture of the rectum are causes of constipation. The treatment consists in the thorough dilatation, or better still division, of the external sphincter muscle. If the operation for dividing the muscle is properly done, there is no danger of incontinence.

GIANT FINGER.[1]

Congenital macrodactyly is a rare affection, notwithstanding that Poliallon was able to collect forty-three cases. Wittelshofer published, in 1879, a work on this subject, in which he stated that the middle finger was most commonly affected. In eight cases the hand was involved seven times, and the foot once. In twenty instances more than one finger was involved in the hypertrophy, the enlargement not infrequently affecting the index and the middle finger. Hypertrophy of the little finger is exceedingly rare. In thirteen cases but a single finger was affected, in three two fingers, and in eleven three fingers. In thirty-one cases the superior extremity was affected, and in twenty-two the inferior.

Macrodactyly exists as a single deformity in only exceptional cases, namely, in twenty-two out of forty-three cases. The thumb was affected in thirteen, the index finger in twenty-one, the middle finger in twenty-eight, the ring finger in eleven, and the little finger in eight. It is somewhat more frequent upon the right than upon the left side. In six cases it was associated with hypertrophy of the hand, and in eleven cases the hypertrophy involved the entire superior extremity. It is more frequent in men than in women. In a case reported by Bilhaut, in which the hypertrophy involved the ring finger, he claimed that there could be no disturbance in the innervation because of the fact that the nerve supply of this finger comes from both the median and the ulnar.

A histological examination of the hypertrophied part shows a simple augmentation in the volume of the tissues—a sort of local gigantism. The skin is hypertrophied and shows the sudoriparous

[1] Boinet: *La Presse Médicale*, Sept. 4, 1901.

glands highly developed, the subcutaneous cellular tissue is thickened, but neither the nerves nor the arteries present appreciable structural alteration. There is no neuritis, arteritis, nor phlebitis. The bones are simply hypertrophied, but without presenting any special anatomical change.

Cestau has described a case of congenital hypertrophy of the middle and index fingers of the left hand. The middle finger had a length of 12.5 centimeters, and was 8 centimeters in circumference. The terminal phalanx was flattened in the form of a spatula. The radiograph showed hypertrophy of the bones, but no exostoses. The left index finger was enlarged, but not to the same extent. There was complete absence of vascular, sensory, and trophic disturbances. He would explain the origin of the trouble by invoking a vasomotor paralysis to account for an increase in the nutrition of the part. It is a congenital vice of development, and is to be classed among the malformations of the degenerate—one of the characteristics of the neurotic family.

The case reported by Boinet is that of a man 32 years of age,

vigorous, and who had always had good health. He was born with a marked congenital enlargement of the middle finger of the right hand, but with no other malformations. The mother claimed that the deformity was caused by an impression during the pregnancy; a photograph of her husband was shown her, in which a ray of light had fallen upon the right hand, causing the length of the middle finger to seem greatly exaggerated. The deformity increased as the child grew, so that as an adult the difference in size between the hypertrophied finger and the normal fingers was very marked. The hypertrophy affected the entire mass of the finger, which extended five centimeters beyond the end of its fellow. The skin of the hypertrophied finger appeared normal, and the hairs were not different from those upon other parts of the hand. There were no vasomotor changes nor alterations in sensibility or temperature. In the progress of time most of the joints had become ankylosed, with the exception of one. The interphalangeal joints had lost their mobility and had become ankylosed in extension; the surfaces of the joints had become enlarged by the formation of osteophytes. The radiograph shows a large number of osteophytes in the extremities of the phalanges, one measuring nearly a centimeter in diameter. It is these osteophytic enlargements of the epiphyses that cause the marked enlargement of the bone.

This observation leads to the conclusion that macrodactyly is not exclusively a teratological defect, but depends also upon a pathological change in development, by which there is a progressive and abnormal deposit of bone tissue in the phalanges. The condition is rarely hereditary.

EDITORIAL COMMENT.

THE LICENSE TO PRACTICE MEDICINE A "RIGHT."

When the Medical Practice Act of Illinois was under discussion some four years ago, there was one clause which was tentatively submitted to the profession with the feeling that it would not be approved by them. Such proved to be a fact, but it nevertheless showed what the real interest of the profession was in aiding to enforce an adequate medical practice act. It was proposed in that act to limit the term of the license of all physicians to one year, requiring them to make application for renewal at the end of each year, and as an appropriation could not be obtained from the legislature for enforcing the act, it was proposed to make a nominal fee of fifty cents for registration. It was pointed out that this would enable the authorities at Springfield to detect the many individuals who practice under assumed names with purchased diplomas or other irregular methods of obtaining a license. It was also seen that this would exercise a wholesome restraint upon irregular practices in the profession. An avowed quack or charlatan even if registered would find himself outside of the profession every year, and even if he succeeded in fighting his way back he would have to go through this process at frequent intervals. When the law was proposed the charlatans of the State immediately saw the effect of this clause, and that it meant utter annihilation of their interests. The clause in question was, we believe, never even considered in the Senate committee.

Kentucky has been claimed by the profession to be one of the banner States in the enforcement of an excellent medical practice act. Its medical men claim to get rid of quacks by most drastic measures. Recently a very large hole was drilled into their medical practice act in the decision of the Court of Appeals of Kentucky in the case of Matthews *vs.* Murphy. The court held that the license to practice medicine is a "right" or "estate." It seems that the State Board of Health had taken away the license to practice because of unprofessional conduct likely to deceive or defraud the public. The court examined by what right the State Board of Health assumes to measure an individual's professional conduct. Referring to the medical practice act, one section of which provides that the board may refuse to issue a certificate to practice medicine

to any individual guilty of grossly unprofessional conduct of a character likely to deceive or defraud the public, the court remarks: The statute does not prescribe the manner by which a physician may regulate his conduct. It does not advise him in advance what act or acts may be in violation of its provisions. He is not told what is lawful or unlawful. He might commit an act which he regarded as entirely proper, which neither violated moral law nor involved turpitude; still such acts might in the opinion of the State Board of Health amount to unprofessional conduct. The physician who committed the act of which complaint was made could not know at the time the act was done what standard would be erected by the board by which its effect was to be determined. The legislature in effect has attempted to commit to the State Board of Health the right, after a physician has done some act, to determine what its effect is to be, and if in its judgment he should be deprived of the right to practice his profession, it can inflict punishment upon him by revoking his license. For these reasons the court holds that the statute, so far as it attempts to confer upon the State board the right to revoke a physician's license for unprofessional conduct, is invalid. The decision only affects that portion of the statute dealing with the right to revoke the license of a physician for unprofessional conduct, the other parts relating to passing upon the qualifications of candidates for the practice of medicine not being affected. The court says that it is competent for the legislature to pass an act which shall determine what the conduct of a physician should be, and the enforcement of such a statute can be vested in a proper tribunal.

It will be seen that the first time a case reaches a higher court in Kentucky, a much-praised medical practice act meets with serious defeat. One with any knowledge of constitutional law cannot but approve the decision of the court. To admit as a principle of law that a governing body may constitute a tribunal to pass arbitrary judgment upon the conduct of another, based solely upon its own judgment as to what is proper under the circumstances, will certainly never be received as good law in our States. At the same time it seems intolerable that license of a State should be invoked to shield practices that are little less than criminal.

We should very much like to have seen the experiment tried in Illinois for the annual renewal of the license. The refusal to renew would not in effect have been taking the right that a man had, but would have been in effect the same as refusing to issue a license to him in the beginning. It was thought by many in the profession

that this was putting too much power into the hands of the board having the administration of medical affairs. As a matter of fact the administration of such a law in our republican institutions is more likely to be too lax rather than too severe. "Pull" and favoritism will often serve to get men restored to the list who ought to be dropped, rather than that reputable men should be abruptly refused registration without redress.

The study of the whole question of medical legislation in this country shows that it is fortunate that the medical practice acts cannot be passed by the profession alone. If they could have been, what monstrous laws would have been placed upon the statute books, there being practically no uniformity of belief in the profession as to what is needed in a medical practice act, and no conception of what is constitutional and practical!

AUTHORITY FOR TRUTH AMONG TEMPERANCE WORKERS.

A pronouncement has been issued by the American Medical Temperance Association officially condemning Prof. W. O. Atwater's views on the value of alcohol. It is stated that the association has devoted years to the study of alcohol and its effects, and that it is conversant with the work done by scientific men the world over, and that they have examined the teachings of Prof. W. O. Atwater. It is further resolved to utterly repudiate the pro-alcoholic doctrines set forth by Professor Atwater, as being contrary to the evidence deduced by scientific experimentation, and that his conclusions are unwarranted by the evidence of his own experiments. They further resolve that the teachings are a source of danger to the laity, insomuch as such views tend toward an increased consumption of alcoholic beverages by giving supposed reasons for their safe use.

This reminds one of resolutions that were not infrequently passed by Covenanters, synods, and other ecclesiastical bodies in the middle ages. It is in effect an affirmation that the creed of Davis and Crothers is true, while the creed of Atwater is pernicious and unwholesome. Such a resolution is tantamount to saying that authority can be used to establish truth — a principle which has long since been scouted by the scientific world. Mere numbers, purity of motive, or social standing does not constitute a court of last resort in which scientific questions can be tried. While this resolution does only a little harm to the temperance cause, it is a sample of the alcoholophobiac tendencies of the modern temperance movement.

The vast amount of light that has been thrown upon the alcohol question both in its clinical and experimental phases must convince any medical man who candidly examines the evidence that as a beverage it is always harmful, and that its use in medicine is limited to a few conditions. To the accumulation and dissemination of this knowledge Davis and Crothers have contributed much. The American Medical Temperance Association will further the combat against intemperance much more efficiently by continuing the spread of truth than they will by condemning the views of Professor Atwater, which we are strongly inclined to believe correct.

The question whether alcohol is a food has been a debatable point for a number of years. It would not be difficult of solution if we had an accurate definition of what constitutes food. The belief that it in small quantity may be oxidized and maintain nitrogenous equilibrium has to our mind been proven. In some way the alcoholophobiacs have conceived the idea that to admit this proposition would weaken the cause of the temperance movement, so they have fought earnestly against the establishment of such a doctrine, without first inquiring as to whether it is true or not. We would earnestly urge these doctrinaires to first seek after truth, feeling sure that it would do no injury to their cause. If it should be shown that alcohol is capable of maintaining the oxidation of the body it would not follow that this substance should be classed as a food within the proper definition of the word. There would still remain the vast mass of clinical material, a study of which shows that alcohol is a rank poison and that its prolonged use even in moderate quantities tends to a degeneration in the cells of the body, and that its use in health is always detrimental, and its usefulness in disease is probably restricted to a very narrow range.

R. C. Naumann, in the *Münchener Medicinische Wochenschrift* of July 2, 1901, has made some personal experiments upon himself in relation to alcohol. For a period of seventy days he carefully dieted himself until nitrogenous equilibrium obtained. Then he omitted one-half the quantity of fat which he had been taking. Immediately there was an excess in the nitrogenous output. He replaced the fat by alcohol, when the nitrogenous equilibrium was again restored.

We presume that this capability of oxidation must entitle alcohol to rank physiologically and chemically as a food. It will now be in order at the next meeting of the Temperance Association to officially condemn Naumann and his views.

It is evident that the point at issue between Atwater, Naumann,

and the temperance people is purely verbal. If they can come to an exact definition of what they mean by food, the controversy would disappear. Even if it is admitted that alcohol is capable of maintaining oxidation in the body, it has been abundantly shown that its food value is very low, and if taken in a quantity exceeding one ounce its effects are poisonous. As a stimulant it is disappointing in the majority of instances, as better results can be secured from the administration of hot broth or a hot normal salt solution.

In India where famine prevails roots and even grass have served as food. Physiologists tell us that the human intestinal tract is capable of digesting a certain amount of cellulose, hence this substance must be regarded as a food, as it helps to maintain nitrogenous equilibrium. How far a diet of sawdust and bran would serve to maintain the nutrition has never been established.

The temperance workers have abundant material without bothering about the hypothetical food value of alcohol. If all of the good that alcohol ever did were gathered together it would be but a drop in a vast ocean of crime, misery, and wretchedness, chargeable to the misuse of this substance.

THE DEGRADATION OF FOOD.

We have frequently called attention in these pages to the alarming extent of food adulteration. Scarcely a food product can be mentioned that is not in some way sophisticated. In some instances the additions are harmless and perhaps have themselves a food value, such as the addition of starch to pulverized sugar or of corn-meal to flour. The effect of such substitutions is not in itself harmful, but it perpetrates a fraud which should not be permitted. Much food adulteration is in the nature of preservatives, which render the food of less value and sometimes interfere markedly with its digestion. Other adulterations consist of the addition of harmful substances to increase the bulk of the product.

We quote herewith an editorial from the August 10, 1901, issue of *The Lancet*, which says that food adulteration, notwithstanding the rigid English laws and the laboratories which have been established for the detection of adulteration, has been carried to such a point as to seriously menace the well-being of the English people.

"There can be no doubt that during the past decade food has undergone a steady degradation, and this cannot be without a demoralizing influence upon the human race. It will be noticed

that by far the majority of cases of tampering with food relate to the substitution of a cheaper article rather than to the addition of an injurious substance. The common defense is that modern conditions of life make substitution a necessity. It is difficult to see the logic of such a defense—at least in a number of instances. It is urged, for instance, that jam or marmalade cannot be made without the addition of glucose, which prevents the preserve from crystallizing. Now long before glucose was a household word jams and marmalade were made—and very good they were, too—consisting entirely of sugar and fruit. In the same way we are told that beer must be brewed from sugar, and that brewing exclusively from malt presents untold difficulties. Again, golden syrup, which used formerly to be the refined syrup of molasses, consists largely now of artificial sugar, which is doubtless a more marketable product, but is not the same thing as cane-sugar. Yet again we are told that the public demand a perfectly white loaf of bread, the truth in reality being that machinery has produced a roller flour which is an inferior thing to the now, we suppose, extinct stone-milled flour. Instances of this sort could be multiplied. We could wish that all those keeping house would make up their minds seriously to return to the excellent custom of preparing many articles of food for themselves at home. Who does not admit the charm of home-made bread, home-brewed beer, or home-made jam, and simply because they are known to be made from an honest formula which has stood the test of time and from good materials which yield a palatable product? Even in the country good old-fashioned wheaten bread, with that fascinating brown color of rich wheaten flour, containing the entire nutritious portions of the berry and possessing that delightful wheaten flavor, now seldom, if ever, characteristic of bread, is difficult to obtain. The baker's loaf is, as a rule, a tasteless, insipid article which requires a considerable appetite before the idea of eating it can be entertained. No wonder that the taste for bread is steadily diminishing, and undoubtedly less bread is consumed than used to be the case. As is well known, bread contains almost every element of food necessary for existence, but we should be sorry for the person who tried to subsist entirely upon the modern uninteresting loaf made from blanched roller mill flour. It has recently been stated that the degradation of food is a very serious matter and is bound sooner or later to lead to the degradation of the eater. No movement could confer greater blessing upon the people than that which aimed at bringing about a return to the older and more rational methods of preparing food. Let us

see more of the home-made article than we now see; let us return to more palatable food and to food that will do more good than the machine-made stuffs and the endless series of substitutes. In all the schools throughout the land we would have the children taught the advantages of home-made food, and how that bread, fruit, jam, or even beer and cider can be made at home. It would encourage a spirit of industry, it would give us palatable and nourishing articles to eat or drink, and might have a very wholesome effect upon those who seem deliberately to attenuate food as much as possible, or who pay no regard to its naturally endowed palatability."

If such conditions obtain in England, what must they be in this country, with little or no statutory limitation of food adulteration and no means of ascertaining how far food is impure?

THE PILLOW-SLIP METHOD OF USING MERCURY.

The profession have long recognized the advantage of introducing mercury under the skin in preference to administering it by the mouth. Mercury, like most metallic poisons, with difficulty passes by the liver into the general circulation. The liver seems to have a peculiar capacity for turning back metallic substances into the intestines, from which they are absorbed to again reach the liver, to be again excreted by the bile. We do not know how often this process of absorption and excretion is carried on, but it is certain that the amount which is absorbed and enters the general circulation is only a small proportion of that which is ingested, and this quantity is only taken up after a considerable time.

The somewhat analogous substance, arsenic, is shown to obey the same rule. If arsenic is injected hypodermically it does not produce the local disturbance of the stomach, and its toxic action upon the upper portion of the small intestine is *nil.* When administered in large doses in the form of a soluble preparation under the skin, it is found to have the toxic effects of a narcotic poison, and to be quite devoid of local irritation. That the explanation of this is found in the persistence with which arsenic is excreted by the bile after being absorbed is in the highest degree probable.

In the use of mercury it is that portion which passes beyond the portal circulation and enters the blood which is of service in dissolving exudates and in overcoming the specific effect of the syphilitic poison. Two methods are available aside from the use of mercury by the stomach: one is to give it hypodermically, the other to rub it into the skin.

The hypodermic method, by which soluble, and sometimes insoluble, salts of mercury are placed deeply into the muscular tissues, has been warmly recommended by certain syphilographers, but others contend that it is not as efficient as the oral administration of the drug. The ideal salt of mercury has not yet been devised for hypodermic or intramuscular injection, so that whenever this method is employed there is more or less irritation and absorption is very slow. It has the advantage of definiteness, because when a given quantity of mercury is once introduced, it must ultimately be absorbed.

The inunction method is far from definite, but efficiently performed it is a valuable means of introducing mercury into the general circulation. Experiments have shown that there is comparatively little absorption through the unbroken surface of the skin, even when the inunctions are thoroughly performed. The claim has been made by some that there is practically no absorption, but this has been experimentally shown to be incorrect; but the amount of absorption is very much less than has generally been supposed.

Many believe that inunctions are useful from the fact that the mercury is volatilized at the temperature of the body, and is thus slowly absorbed by the lungs. One thing is certain, that when this avenue of absorption is effectually closed, the amount of mercury which is absorbed by the unbroken skin, even when thoroughly rubbed in, is very minute. In the so-called pillow-slip method dependence is placed upon volatilization and inhalation. A small muslin bag is prepared of sufficient size to cover the front of the chest. The bag is fitted with suitable tapes so that it may be attached around the neck and held smoothly under the arms. The inside of the bag is spread with from one-half to two drachms of mercurial ointment; the bag is then inverted and fastened neatly to the surface of the chest. The heat of the body vaporizes the drug, which is gradually inhaled. Welander, who first urged this method, has secured results comparable to those obtained by inunction and superior to those obtained by hypodermic injections. He has frequently observed a mercurial stomatitis develop within a few days after the application of such a bag containing mercurial ointment. In employing this method in one of his cases that was under treatment in hospital, a patient occupying an adjoining bed was accidentally mercurialized, showing that the volatilization of the mercury at the body temperature is not as slight as might be expected.

We are surprised that the method of Welander has not been more generally adopted, as it has been shown that it is both cleanly

and efficient. It is much simpler than inunctions, there is not the same danger of local reaction in the skin, and the amount of mercury which is absorbed in this way is equal if not superior to that which is absorbed in inunctions.

MASSAGE IN SPRAINS.

Recently there has been extensive discussion in the surgical societies on the treatment of fractures by massage. This method has not received deserved attention, in part because any strictly new method would be tried with great diffidence because of possible medicolegal complications. It is claimed by those who advocate massage in fractures that where a fair reduction and approximation of the fragments cannot be secured, older methods must be employed. The disadvantages of a fixed dressing in lessening the circulation will always interfere with nutrition and a quick repair of the injured bone. In fractures without much displacement, or those which are readily adjusted by manipulation, massage will undoubtedly displace the older methods. An approximate degree of immobility is all that is necessary in the healing of most fractures, and if the case is seen every day, deformity if it occurs may be readily overcome by manipulation.

Whatever may be said of the treatment of fractures by massage does not apply to massage in sprains, especially when accompanied by a traumatic synovitis. Injuries of this sort, which largely include the knee and ankle, are still treated by rest, notwithstanding the quite constant unsatisfactory results. This we believe to be the generally accepted treatment, notwithstanding that for years a few men have been obtaining singularly rapid results in the early application of massage. After a severe sprain the part should be placed at rest for eighteen to twenty-four hours, during which time hot fomentations should be applied and other methods employed which tend to reduce swelling, inflammation, and pain. After this there should be a vigorous and deep massage of the affected part. The massage should begin below the joint and should at first be light, gradually becoming deeper; as the massage continues the pressure becomes deeper, and after a time the whole strength of the operator may be used without causing severe pain. Even if the patient does not tolerate well the discomfort of the manipulations, they should still be persisted in, as only deep manipulation is useful. Sometimes a single treatment of a swollen and ecchymosed joint will cure. The patient should be at once gotten up and instructed to walk, favoring

the injured extremity as little as possible, meaning by this that his movements should be as nearly normal as they can be made. A daily treatment of this sort will result in the cure of most cases of sprains and traumatic synovitis within a week or ten days.

The same methods are applicable to chronic traumatic synovitis, or in fact any form of joint inflammation not attended by infection. In the chronic cases more time is required for a recovery than in the acute and recent cases, but patient manipulation will generally effect a cure. It must never be forgotten that no joint of this sort can be considered as recovered until full motion is restored. As long as adhesions prevent this, recurring attacks of inflammation occur with all the phenomena attending a chronic articular inflammation.

FOOD BEFORE SLEEP.

There is an unwarranted belief of the laity that food taken at night is injurious and tends to prevent sleep. It is difficult to say how such an idea became prevalent, unless the habit of going to bed upon an empty stomach was gradually acquired, and when this was suddenly interrupted by a heavy repast of indigestibles the obvious consequences followed. The repetition of such experiences would easily lead to the belief that an empty stomach was necessary for a good night's rest. We speak advisedly of acquiring a habit of sleep upon an empty stomach, as such is not the normal condition of infants. When a healthy infant cries, it is generally a sign that it is hungry. If food is given he promptly goes to sleep. Sleep on a full stomach is normal in infancy and early childhood, and the contrary habit is acquired. A study of the habits of animals teaches the same lesson. A not very attentive observation of the domestic animals shows that after ingestion of food there is a period of rest.

The long interval in the taking of food covered by the period from the last evening meal until breakfast the following morning is too great for any but the most vigorous. It will be found that food administered every two or three hours to the convalescent, the emaciated, and those suffering from chronic diseases which tend to failure of nutrition, will markedly improve the general condition of the patient.

Insomnia is the most striking indication for the use of food before retiring. The writer of this article was recently consulted by a young man, a student, who had been in the habit of closing a hard day's work by a couple of hours' earnest reading in bed. Upon

laying aside his book he found that he slept very poorly, but that if he took a small quantity of whiskey he would almost immediately drop off to sleep. Continuing this practice for some weeks, somewhat to his surprise he found that he had formed a habit, and that it was practically impossible for him to go to sleep without his accustomed stimulant. In great trepidation he sought consultation, and was advised to substitute for the alcohol a glass of hot malted milk. At the end of a week he reported that the remedy was a perfect success. Not only had he begun to sleep more promptly on the hot milk than he had upon the liquor, but he awakened in the morning refreshed and rested to a much greater degree than when the stimulant was employed.

In our remarks upon food at night we would not be understood as encouraging the midnight supper of Welsh rarebit, broiled lobster, or other indigestible compounds, but a light repast, such as a glass of malted milk taken hot just before retiring, is favorable in insomnia and in all cases of defective nutrition, and it is not a bad practice in health.

RAPID VERSUS SLOW OPERATING.

A recent Paris controversy is the question of rapid and slow operating. Professor Doyen is a disciple of rapid work, while Pozzi contends for the more deliberate method and scoffs unmercifully at those surgeons who operate quickly. To our mind there can be no question between rapid operating and slow operating. If the issue was between hasty operating, by which we understand a certain degree of rashness or heedlessness in the performance of operations, then there might be some reason for the controversy.

In the days before anesthesia rapid operating was a *sine qua non*. The less time that a surgeon took in getting the stones from the bladder, severing the nerves and muscles in an amputation, or in ligating an artery, the greater the chances for recovery, because of the lessened shock. Aside from any consideration of the safety of the patient, the saving from suffering was the strongest incentive toward rapid operating. With the advent of anesthetics, which admitted of the development of plastic surgery, a more deliberate style of operating came into vogue. It seemed to make little difference whether patients were kept under the anesthetic fifteen minutes or half an hour. We question whether deliberation in matter of operations has not gone too far. We have seen surgeons put patients under an anesthetic ten or even twenty minutes before

they were themselves ready to perform the operation. Indeed, in some public clinics it is the practice to begin anesthetizing patients before the close of the preceding operation, that no interval shall occur in the clinical demonstrations. Such practices as this we conceive to be reprehensible in the highest degree. The surgeon will best serve the interests of his patient by limiting the length of anesthesia to the shortest possible time. This can only be done by having everything in readiness before beginning with the anesthetic, so that at the moment surgical narcosis obtains the operation can begin. Due expedition should be exercised in operating, but accuracy and discrimination should not be sacrificed.

Doyen claims to do a hysterectomy, a craniectomy, a goitre or an appendicitis operation in from four to ten minutes. These statements of the eminent French surgeon have gotten to the ears of the public and have been vigorously attacked by some of the older surgeons under the lead of Pozzi. It seems that Doyen has the best of the argument, having proved conclusively that he does the operations named safely and accurately in much less time than the older surgeons.

A METHOD OF TEACHING REGIONAL ANATOMY.

C. M. Jackson, in the *Journal of the American Medical Association* of September 21, 1901, has a valuable article upon the method of teaching regional anatomy. Anatomy was one of the first of the medical sciences to adopt an objective method of teaching, and the art of dissection has been cultivated for generations. He thinks, however, that the present methods do not enable the student to see through the body, knowing all of the related structures. Nearly the whole time is spent upon the study of the individual organs and various systems, and very little attention is paid to the relations of the organs to each other, and to the surface of the body. The only method by which spatial relations can be accurately studied is by serial sections.

In his method the cadaver is injected with 50-per-cent formalin through the common femoral. Within a few days all the softer tissues of the body become thoroughly hardened, and every organ is fixed in the exact position it occupied during life. The class in regional anatomy is always composed of those who have completed their dissections in the usual way. The students are assigned to different portions of the hardened cadaver. Especial stress is laid upon the study of the landmarks of the body. The sections are

made from one-half inch to one inch in thickness, and it is surprising how well they hold together. The formalin method has many advantages over frozen sections. The sections are more easily made and are smoother. The position of the organs in each section is carefully noted, every nerve and blood-vessel is traced and identified, and the student is required to make a careful outline drawing of each section.

THE EPIDEMIC OF SMALLPOX IN 1901-2.

A reference to the health reports of the last few years shows that there has been a marked recrudescence of smallpox in different parts of the country. The general neglect of vaccination, or failure of the local profession in many instances to diagnosticate the presence of smallpox, has established a number of centers of infection from which the disease will certainly spread with the advent of cold weather. Michigan, Ohio, and Minnesota are especially involved. The excellent sanitary organization of Michigan can probably be relied upon to limit the epidemic in that State, but the less efficiently organized local and State services of Ohio and Minnesota will unquestionably lead to more or less extensive epidemics in these States. The South is largely infected, epidemics being reported in North and South Carolina and in the Virginias. Nowhere in the infected areas do we learn that such vigorous efforts are being made in vaccinating the community that we can confidently look forward to a cessation of the epidemics which began two years ago, and which each recurrent season have increased in severity and extent.

ABSTRACTS.

MEDICINE.

A Case of Peripheral Pseudotabes with Exaggerated Reflexes, Degeneration of the Peripheral Nerves, and No Lesions of the Spinal Cord.—

Charles K. Mills, in the *Journal of Nervous and Mental Disease* for August, 1901, reports the case of a man 75 years old, admitted to the Philadelphia Hospital in 1897, having had good health until twelve years before this time, when he began to have attacks of pain in the back which he attributed to cold, wet, and overexertion. Six years before admission to the hospital he began to show weakness in his right leg, which increased, the left also becoming affected. Two years after ataxia of station developed, and a year later he had to use a cane in walking; and at about the same time dull aching and at times shooting pains in the legs occurred. Later, but at a time not exactly recorded, he had trouble in holding his urine. Special notes of his condition were made in June, 1898. Tactile and pain senses were normal; temperature sense uncertain, especially on top of feet and outsides of thighs. Station and gait showed incoordination. The upper as well as the lower extremities were markedly ataxic. The knee-jerks were plus; patellar clonus absent; ankle-clonus absent; biceps-jerk, jaw-jerk, plantar, cremasteric, and abdominal reflexes present. The patient made no complaints of paresthesia of the feet or other parts. Additional examination and notes were made in May, 1899, which practically agreed with those above recorded except that the ataxia had become more marked in both legs and arms; the left pupil responded to light, accommodation, and convergence; the right pupil did not react to light, and but poorly to accommodation and convergence.

The following notes were made July 10, 1899: The patient is a rather poorly nourished man of average height; his face is dull and stupid; tongue is coated and protrudes without tremor; eyes are half-closed most of the time; extra-ocular movement fairly good. The left pupil reacts to light, accommodation, and convergence; the right pupil has little or no reaction. The musculature of the extremities is fairly well preserved, no wasting being detected; legs and arms slightly spastic. Station markedly ataxic, the patient tending to fall unless supported; the gait is also ataxic. The grip

is fairly good in both hands. Knee-jerks plus; quadriceps-jerks present; patellar clonus and ankle clonus, cremasteric and plantar reflexes absent; biceps-jerks plus; Sinkler's toe-jerk present. The patient's mental condition precludes any satisfactory examination as to sensation, but tactile and pain senses seem to be retarded in both legs.

The patient died August 31, 1899, the physical signs and investigations made some time previous to death showing probable nephritis with cardiac degeneration, valvular disease, and eventual pulmonary edema.

Wm. G. Spiller reports as follows regarding his findings in the case: The spinal cord in the cervical, thoracic, and lumbar regions is almost normal. Some of the small vessels of the pia have walls of hyaline appearance when stained with carmine, and occasionally a slight round-cell infiltration about the vessels may be found within the spinal cord, but these are unimportant findings and do not explain the symptoms. The nerve cell bodies of the anterior horns in the cervical and lumbar regions are not quite normal, as in some the chromophilic elements in the center of the cell body have become granular, and in some the nuclei are displaced. Many of the cell bodies are deeply pigmented, but the alteration on the whole is not very intense. The ventral and dorsal roots everywhere are normal. Marchi preparations of sections from the lumbar region reveal nothing abnormal. The left internal plantar nerve is much degenerated, and muscle from the sole of the left foot contains many bundles of atrophied muscular fibers. The nerve bundles within the muscular tissue are also much degenerated. The case is one of degeneration of the peripheral ends of nerve fibers with some degeneration of the muscles.

Spider Bites in Southern California.—

C. C. Browning (*Southern California Practitioner*, August, 1901) has made a study of the spiders that bite man and are supposed to be poisonous, and which have their habitat in southern California. In general he believes that the smaller spiders are quite harmless, and that the larger varieties, while to a certain extent dangerous, are much less so than is commonly believed. There is a marked personal difference in the susceptibility of individuals to the bites of poisonous insects, and it is possible that climatic variations may alter the dangerous character of some species. It is related that an Englishman who was familiar with the tarantulas of Europe, and had no fear of them, allowed himself to be bitten by one of the

species in Arizona; the blood poisoning was so intense that he came near losing his life.

The special purpose of the paper is to investigate what is commonly known as the little black spider which is indigenous to the southwestern portion of the United States and is reputed to have venomous properties. The opinions are very conflicting, but the writer has seen alarming and persistent symptoms following the bite of this small member of the species. There are two varieties of the black spider: one, the *Phiddipus*, which is hairy, with red spots on the upper surface of the abdomen; the other is the *Latrodectus*, which is glossy black, with red spots on the under surface of the abdomen.

The writer has made a collective investigation among the physicians of southern California, and has gathered eighty-three cases of bites by insects followed by constitutional symptoms. In one the species was unknown; centipede, three; scorpion, four; tarantula, five; black spider, seventy. In sixty-three of the cases caused by the bite of the black spider, the wound was in the genital or gluteal region, the remainder being on various parts of the body. The first symptom is a pricking sensation, and in a few there was severe pain and swelling over the region of the wound. In one or two minutes a redness showed at the point where the fangs entered. In from five to ten minutes there is a feeling of lassitude with slight aching in the lumbar regions; then appear slight rigors, cold perspiration, slow pulse and respiration. The pains increase and extend into the thighs. In most cases the symptoms yield readily to treatment. In some severe cases the local symptoms were scarcely noticeable, the patient being in doubt as to whether he had actually been bitten. In the grave cases the symptoms of prostration develop, the rigors are severe, there is vomiting and nausea, with a subnormal temperature. The respiration is difficult and slow, going down to six per minute. These symptoms of prostration develop in the first hour; convulsions and death may close the scene. In the severe cases in from one to three hours a slight general temperature may show itself, accompanied by a fine rash, which appears first on the chest and gradually extends to the trunk and limbs. Of the cases reported three were fatal.

The prophylaxis of these spider bites is easily accomplished, as 90 per cent of the cases occur in out-of-door closets. The hiding-place can be overcome by simply having the seats of the closet hung upon hinges and leaving them open when not in use.

Syphilis of the Liver.—

Max Einhorn, in the *Medical Record* of August 17, 1901, reports ten cases of syphilitic disease of the liver and gives a brief analysis of the literature.

In speaking of the symptomatology he says that pains in the right hypochondrium are usually present, occasionally continuous, and again paroxysmal, in the latter case resembling hepatic colic. The disturbances of the digestion are various, sometimes diarrhea, occasionally constipation, a lack of appetite, and frequent eructations. Sometimes there is a sense of tension in the upper half of the abdomen. If the disease of the liver has been in existence for some time the patients usually lose in weight, but never to such an extent as in malignant disease of the organ. Icterus may be acute, persisting for a short time and then disappearing, or it may become chronic.

Syphilis of the liver may be conveniently divided into three groups: (1) Gummata of the liver; (2) syphilitic cirrhosis; (3) syphilitic disease of the liver belonging to either of the two groups mentioned, accompanied by acute or chronic jaundice. To whichever group the morbid process of the liver belongs, the organ is usually more or less swollen, extending in the right mammillary line beyond the free border of the ribs. If gummata are present they may frequently be recognized by palpation. If the cirrhotic process be due to syphilis, the organ is markedly enlarged. In the advanced stages with amyloid degeneration, the organ appears harder and smoother than normal. Ascites may develop in a late stage of the disease.

The diagnosis is easiest where gummata exist with other signs of a present or recent attack of syphilis. The diagnosis is more difficult when tumors of the liver are found without a history of or signs of syphilitic infection. In some of these cases the only clinical distinction is the effect of antiluetic treatment. In cases with simple enlargement and induration with a history of syphilitic infection, success with antisyphilitic treatment enables one to make the diagnosis with some degree of probability, but not with certainty. Syphilitic cirrhosis of the liver resembles so much the ordinary hypertrophic cirrhosis that clinically they can hardly be distinguished.

The prognosis at first sight seems grave, but most of the cases so far published were in the final stages of the disease and were no longer amenable to treatment. If the diagnosis is made at a stage of the disease when the patient has not lost too much strength and

when grave complications have not yet appeared, the prognosis is favorable. Of the ten cases which the writer reports only one died, and this case had been considerably benefited for five or six months. The remaining nine were cured or much improved.

The treatment is that appropriate for syphilis. The iodides play an important rôle. From fifteen to forty-five grains of the salt should be given daily until sixty to ninety grains are reached. The iodides should be combined with mercurials by inunction. The antiluetic treatment should be continued for two or three months or longer. If icterus is present glycerin in teaspoonful doses before meals should be given. Anemia, ascites, or other complications should be met by appropriate treatment. Proper hygienic and dietetic management should always have a part in the treatment. The food should be nutritious, and all alcoholics as well as tea and coffee should be excluded. Meat should be taken only in small quantities and not too often.

The Pathological and Clinical Study of 120 Consecutive Cases of Acute Lobar Pneumonia with Post-mortem Examinations.—

John L. Steven, in the *New York Medical Journal* of August 10, 1901, gives an analysis of 120 cases of acute lobar, or croupous, pneumonia, in which he made a record of the post-mortem findings. He has examined the clinical data of the cases so far as they are available.

A detailed account of the condition of the different organs as well as the changes in the lungs is given, for which reference must be made to the original paper. The nature of acute lobar pneumonia is discussed, based on the findings of these cases. He classes the cases as primary and secondary. By primany pneumonia he means a disease which begins acutely in the midst of ordinary health and runs the characteristic clinical course. Secondary pneumonia is due to some old-standing primary lesion elsewhere, or to septic absorption or insufflation. The appearance of the lung may be the same in both varieties, and nothing in the morbid anatomy would enable one to distinguish, from the lung lesion alone, whether the disease were primary or secondary. Bacteriologic examination is valueless, as the same organisms are found in both varieties. Only eighteen of the 120 cases can be classed as secondary. Of these nine were septic cases, eight were insufflation pneumonias, and one followed opium poisoning. Twenty-one of the cases were associated with Bright's disease, and these possibly may be regarded as secondary, but he includes them in the group of primary cases. While in

a general way morbid anatomy does not enable one to distinguish between the primary and secondary pneumonia, to the eye of the trained pathologist the secondary form of the disease does not present that homogeneous and uniform appearance which is found in the red or gray hepatization of a primary lobar pneumonia.

Of the 102 cases of primary acute lobar pneumonia, all point conclusively to the fact that this disease is a general febrile disease. Its seasonal distribution shows that it is not a local inflammatory infection. The variability of the site of the lesion, occurring in some cases at the base and in others at the apex of the lung, and sometimes simultaneously in the two lungs, points to a general infection. Lobar pneumonia is frequently associated with pleurisy of the opposite side and with pericarditis. In three cases pericarditis was found in the right-sided pneumonias, the lesion being situated in the upper lobe. These circumstances point to the general infectious character of the disease. Its association with acute peritonitis indicates a general infection, all the great serous cavities of the body being more or less involved. There is the cloudy swelling of the liver, kidneys, and spleen which is usually met with in the specific fevers. One of the strongest clinical arguments in favor of the view that we are dealing with a general infection is found in the constancy with which the crisis of the disease occurs on the seventh or eighth day. By far the largest number of patients died on the seventh day.

Pancreatic Diabetes.—

Joseph B. Betts, in the *Albany Medical Annals* for September, 1901, describes the case of a man 40 years of age whose family history was unknown. His previous history is said to have included intemperance, but its exact details were not obtainable. He was admitted to hospital for chronic melancholia; he was depressed and had hallucinations of hearing. At the time of admission his insanity had been of about a year's duration, but he had been employed at a laborious occupation. He remained in comparatively good health until two years after admission, when he began to emaciate and show considerable weakness. Examination of the urine showed eight per cent of sugar and a marked polyuria. Examination of the lungs was negative, but there was a loud mitral systolic heart murmur. Repeated examination of the urine always showed sugar, but never albumin. Three months after the glycosuria the patient died of acute lobar pneumonia.

The autopsy showed brown induration of the lungs with red

hepatization of the left lower lobe. There was mitral obstruction, a dilated stomach, and a nutmeg liver. The kidneys were hypertrophied, and there was atrophy of the head of the pancreas. The usual changes of chronic insanity were noted in the brain.

The pancreas showed moderate interacinar cirrhosis. The islands of Langerhans were normal in number, but many were not clearly defined, and some were surrounded by a distinct connective tissue capsule, which separated them into little lobules. In the bodies themselves were many cirrhotic islands, some of them apparently degenerating in their central portion. The head of the pancreas was loose in structure, and in some lobules the secreting acini were atrophied. The islands were scarce and were surrounded by thick fibrous capsules, and were separated into lobules by thick bands, evidently the thickened capillaries of the island. Bands of fibrous tissue extended outward between the acini. In sections from the head of the pancreas no islands could be found, and in some parts the cells seemed to be degenerating. Throughout the pancreas the larger vessels showed decided arteriosclerosis and venous congestion. The cirrhosis was of the interacinar type, and as a rule was most marked in the immediate vicinity of the islands of Langerhans, although in some sections it appeared to extend from the thickened walls of the ducts.

The writer in discussing this case says that the diabetes depended primarily upon the cardiac disease and the associated arteriosclerosis. When the heart disease had advanced so far that the liver became hyperemic and many of its cells were destroyed, the glycogen storage capacity was crippled and its glycogen discharging functions stimulated by the chronic congestion and the psychic strain. This would not have been sufficient to cause diabetes if the arteriosclerosis had not interfered with the elaboration of the internal secretion of the pancreas by affecting the fine capillaries of the islands of Langerhans.

Periodic Family Paralysis.—

H. Douglas Singer and Francis W. Goodbody (*Brain*, Summer Number, 1901) give an excellent critical digest with the report of a case of this rare condition. The first case was reported by Hartwig in 1874 under the title of "Intermittent Spinal Paralysis." The clinical manifestations of the disease are remarkably constant. There are periodic attacks of flaccid paralysis in an otherwise healthy individual, which vary in duration from fifty-six to seventy-two hours. As a rule the paralysis comes on gradually, all four extremities being affected, and also the neck and trunk; but rarely

are the muscles of the face involved. With the paralysis there is a loss of muscular excitability and abolition of the reflexes, and a total disappearance of electrical excitability. After a variable period the condition gradually disappears, and the affected person becomes apparently sound and healthy. At no time is there a loss of consciousness or an impairment of mental functions. The attacks occur most frequently at night, though they sometimes come on in the daytime. Occasionally cases are observed in which active muscular movements seem to abort an attack. The intervals between the attacks are irregular, but tend to become less as the individual grows older. As a rule there are no premonitory symptoms, though some observers have described a prickling feeling in the legs. As a rule the paralysis follows a certain order of invasion, weakness most frequently beginning in the legs, extending thence to the arms, and lastly to the trunk and neck. The extrinsic muscles of respiration are involved, and the diaphragm is weakened but not paralyzed. During the attack respirations are shorter; there is an inability to deepen them voluntarily.

The most characteristic feature of the disease is the loss of excitability of the muscles by both the faradic and galvanic current. In intervals between the attacks the majority of patients give normal electrical reactions. But little is known of the cause of the disease excepting that it has a remarkable tendency to recur in families, and in some cases the individual attacks seem to have been brought on by overfatigue.

With our present slight knowledge of the disease it is impossible to accurately classify it, though the diagnosis is comparatively easy. By Goldflam it is placed among the myopathies, but Taylor would place it among the congenital myotonias. It is possible that both these views are correct and that there is some congenital difference in the muscular fibers. It is a disease closely resembling myasthenia gravis.

The number of attacks tends to diminish toward middle age, and sometimes they cease altogether. Life does not appear to be shortened by the disease, nor does death appear to have resulted during the attacks of paralysis excepting in possibly one case.

Mitral Disease.—

J. L. Steven, in *The Lancet* of August 10, 1901, gives a clinical lecture based upon the study of ten cases of mitral disease in the Glasgow Royal Infirmary.

The murmur in eight of the ten cases was situated at the apex,

and systolic in time, being conducted toward the axilla. Such a symptom does not necessarily indicate structural disease of the mitral curtains; all that it means is that the valve did not prevent the regurgitation of blood from the left ventricle to the left auricle. The murmur which indicates unmistakably structural alteration of the valve is the one heard at the apex, and is presystolic in time. In only two of the cases was such a murmur present. A murmur heard in the long pause of the heart, diastolic in rhythm and limited to the apex region in the third left intercostal space, may probably be regarded as indicating deformity of the valve. A mitral diastolic was heard in two of the ten cases, hence there is a reasonable certainty that there was a deformity of the valve in at least two. Of the remaining six, five were also believed to have more or less deformity of the valve, but it was based not upon the position of the murmur but upon the complications. In two a clear rheumatic history could be made out. In one there was a history of scarlet fever. In one there were two attacks of chorea, after the second of which the heart became involved. In one patient there was an embolic hemiplegia. These associated phenomena enable one to say that the mitral curtains are deformed. One case, a man past middle life, was believed to have regurgitation due to myocardial degeneration.

The youngest patient was nine and the oldest 53. Structural lesions are more likely to originate in childhood and youth than after the middle period of life. Mitral incompetency due to myocardial degeneration is essentially an affection of advancing years. This distinction is important as it has a bearing upon treatment.

In six out of the ten cases there was a definite association with acute rheumatism. Only two of the cases illustrated the characteristic pulse of mitral disease. In five of the six cases there was a well marked increase in the pulse-rate, running from 90 to 120. In two of the cases there was or there had been failure of compensation with the accompanying passive congestion of the internal organs. In three cases compensation was fairly maintained.

Chlorosis.—

Gustav Fütterer, in the *Chicago Medical Recorder* for July, 1901, in discussing the diagnosis and treatment of chlorosis and its relation to tuberculosis and round ulcer of the stomach, says that we cannot differentiate sharply between chlorosis and secondary anemia. They are identical so far as the blood changes are concerned. Chlorosis is a neglected disease, and it is not uncommon to find a marked

decrease in hemoglobin in cases which have been under treatment without the condition having been recognized. Many persons suffer from a lack of development of their organs and are prematurely aged by neglected chlorosis. Tuberculosis and round ulcer of the stomach often accompany chlorosis without the latter having been recognized or treated. Chlorosis comes at a time of life when the different organs should be well supplied with blood of normal quality. They suffer from hyponutrition; the organs are flabby and have generally the appearance found in those prematurely aged. If the chlorosis, which is the cause of this nutritional failure, is recognized and vigorously treated, a better development results. With careful training it is possible to recognize chlorosis without a blood examination, but certainty can only be reached by the latter procedure. As a rule it is sufficient to take the specific gravity of the blood and use a table to find the hemoglobin percentage. This is a rapid method which readily lends itself to ordinary consultations. In a case under treatment the specific gravity of the blood should be taken every week until the normal 1059 is reached. After that the blood examination may be made twice a month.

In the treatment of chlorosis the writer advocates fresh beef juice. With this we may commonly expect improvement in from one to three weeks' treatment. The writer's method of preparation is as follows: Five pounds of finely chopped round steak is to be purchased every morning, the fat having been carefully removed before the meat is chopped. It is then mixed with a teaspoonful of salt and put into the upper part of a double boiler and covered without adding water. The lower part of the boiler is filled with water and is kept at a temperature of 120°, which is approximately indicated by placing the hand upon the boiler. If it can be kept there without discomfort it is not too hot. At hourly intervals the beef is stirred. The juice is then squeezed from the meat, seasoned, and half of it is taken at dinner and half at supper. Five pounds of beef yields about a pint of juice.

The analysis of beef juice prepared in this way shows that it contains six per cent of protein and nearly ten per cent of total solids.

Treatment of Acute Insanity in General Hospitals.—

D. R. Brower, in *American Medicine* of August 17, 1901, says that he is sensible of the great improvement which obtains in the management and care of the insane, but commendable as are the methods they must be improved, for progress everywhere is

the order in medicine and surgery. The defects in our palatial public institutions of to-day are: (1) They are most of them too large. It is a physical impossibility for the medical superintendent to individualize the work. He must entrust a great part of the medical care and treatment to his subordinates. (2) They are too far from the homes of many of the patients. (3) Admission to these hospitals is by cumbersome, antiquated, and unscientific methods, often subjecting patients to a severe ordeal that sometimes does serious damage and diminishes their chances of recovery. (4) In some of the commonwealths, noticeably in the State of Illinois, these noble institutions have been degraded to the position of political machines, their organizations used to carry elections, to defray campaign expenses, and to reward those who have rendered party service.

For the past twenty years the writer has had under his care in general hospitals a considerable number of cases of acute insanity. Insane cases can be taken to a general hospital the same as any case of physical disease, without passing through the court. There is no reason why a case of insanity should not have as prompt and vigorous treatment as one with hemiplegia or aphasia; the property interests may not be more difficult of adjustment in one case than in the other. Patients should not be retained in the general hospitals beyond six months unless well on the road to recovery. Care should be exercised in the selection of cases for general hospital treatment, and as a general rule it is applicable only to the primary curable conditions, such as mania, melancholia, and the stuporous states. The secondary insanities with degeneration or cases of arrested development should be excluded.

Granular Degeneration of the Erythrocyte.—

C. Y. White and William Pepper (*American Journal of the Medical Sciences*, September, 1901) have studied the granular degeneration of Grawitz of the red cells in lead poisoning. The degeneration commonly affected cells which showed other pathological change, but they may be present in a cell which is apparently normal. The granules may be large or small. They are usually pear-shaped, and exceptionally rod forms are encountered. The granules in some cells are large and in others small, while some present a mixture of larger and smaller granules. The granules cannot be detected in fresh or in dried and unstained mounts. So far no case of chronic lead poisoning has been found in which these granules were not present. They have been found in lead workers who presented

no subjective symptoms of lead poisoning. In experiments upon dogs it is found that these granules appear within three days after an initial dose of one gramme of lead. For routine work in looking for these granules they recommend the following stain:

Thionin (French)	0.05
Carbolic acid	1.00
Alcohol (95-per-cent)	10.00
Distilled water	90.00

They come to the conclusion that these granules are a constant finding in cases of lead poisoning, and appear very early in cases under the influence of lead long before subjective or other objective symptoms can be demonstrated. The granules disappear in cases of chronic lead poisoning as convalescence is established. Lead does not produce an immunity, as one of the cases in which the granules were found had worked in lead for twenty-four years and another for twenty years without having pronounced symptoms of lead poisoning. It is believed that these granules are a true degeneration of the erythrocyte, and have no relation to nuclear fragmentation or to polychromatophilia.

The Prevention of Plague.—

S. S. Davies, in the *British Medical Journal* of August 10, 1901, has an exceedingly interesting article upon the plague, as it appeared in Sydney. The epidemic in the latter place did not spread by person-to-person infection. The extension of the disease could be only satisfactorily explained by assuming an animated host, not human, to spread the infection, and a second host to communicate it to man; the two hosts are the rat and the flea. "Contact" in regard to plague infection does not mean that one has lately been associated with a plague patient; it means an association with plague rats. Nearly all the cases in Sydney were bubonic in type. The outbreak originated in connection with a wharf, and almost certainly through the handling of plague rats from infected ports. The writer points out the folly of treating all forms of epidemic disease by the same methods. The present government regulations against cholera, yellow fever, and plague are practically transcripts of the former regulations against cholera. The experience of Bristol in dealing with an infected vessel is pertinent. After the cargo had been partly discharged, dead rats were found which had died from plague. The ship was then dealt with as infected, and 226 rats were destroyed. It is impossible to destroy all of the rats in a loaded ship, but in an empty one they are easily gotten rid of. The problem in the pre-

vention of plague is to secure rat-free merchant ships. The necessity of recognizing in our quarantine regulations the method by which plague is spread is of the highest importance. The bringing of a shipload of infected rats from a foreign port, and then hoping to prevent them from landing, is not practicable.

Acute Dilatation of the Stomach.—

Julius Friedenwald, in *American Medicine* of August 10, 1901, says that dilatation of the stomach may be either acute or chronic. Chronic dilatation is most frequently caused by stricture of the pylorus, while the acute form is due to a sudden paralysis of the gastric muscles. Much attention has been paid to chronic dilatation, while little has been said of the acute form, this being probably due to the fact that acute dilatation is much less common. Allusions are often made in the literature to gastric dilatation following the infectious diseases, such as typhoid, cholera, etc., but these are purely cases of extreme gastric atony, which must not be confused with dilatation. Boas recognized two varieties of acute dilatation, one due to constant overloading of the stomach and the other to paralysis.

The writer reports two cases and gives the following symptoms as characteristic of the trouble: Sudden and rapid distention of the stomach, pain, and absence of peristaltic movement; absence of vomiting and diarrhea in the early stages, followed later by constant vomiting of large quantities of greenish fluid, accompanied by great exhaustion. The possibility of acute dilatation in cases of acute abdominal symptoms should be borne in mind. The stomach should be quickly emptied either by an emetic or by the stomach-tube, so as to avoid an accumulation of fermenting material which may give rise to a permanent distention of the stomach.

Primary Hemorrhagic Otitis Media.—

H. J. Curtis, in *The Lancet* of August 17, 1901, reports the case of a woman 35 years of age, who two hours before retiring and while in apparently excellent health began to suffer from noises which were referred to the back of the head. The noises resembled the ringing of bells or the boiling of water. Upon lying down they were no longer noticed, but there developed excruciating pain in the occipital region. The pain kept the patient awake until 2 A.M., when there was a feeling as of something bursting in the head at a point located just to the left of the occiput. Up to this time there had been no disturbance referable to the ear. The

patient was surprised at the same moment by a sharp hemorrhage from the ear. The blood was bright-red at first and then darker. The hemorrhage was sufficient to partly saturate two handkerchiefs. The bleeding continued from 2 until 11 A.M., but for the last two hours of this period the discharge consisted of slightly reddened serum. After the bursting sensation described the pain gradually ceased. There was no giddiness following the attack until syringing of the left ear was ordered on the day of the hemorrhage. The pain continued, but was not acute, for sixteen days. Examination fifteen days after the hemorrhage showed a large perforation involving the posterior and upper quadrant of the left drum, but the hearing was normal.

The Condition of the Kidneys in Reference to Diuretics.—

A. R. Elliott, in the *Medical News* of August 10, 1901, says that diuretics, with the exception of those that have a directly irritant effect on the epithelia of the kidneys, act indirectly through the circulation. It is important that as little irritation be given the kidneys as possible, hence drugs which act indirectly rather than directly should be given in all cases of inflammatory disease of the kidney. In functional urinary disorders they are mainly useful for overcoming concentration and hyperacidity of the urine. To accomplish this simple diluents and salines are best adapted. In acute nephritis saline diuretics are permissible throughout the entire course of the disease, and greatly facilitate the functions of the kidneys by increasing elimination and clearing the tubules of inflammatory débris. Subcutaneous saline infusions are the most powerful eliminants in threatening cases. In chronic nephritis the cardiovascular diuretics are most useful, as dropsy is usually the result of circulatory failure. The dropsy under such circumstances being of cardiac origin may be benefited by circulatory stimulants, providing the kidney is not too badly damaged. Dropsy of purely renal origin is not favorably influenced by diuretics. The condition of the heart and circulatory apparatus in most cases determines the choice of an agent.

Rheumatic Spondylitis.—

H. Forrestier, in the *Archives Générales de Médecine* for July and August, 1901, gives a study of twenty-three cases presenting marked clinical variations. He groups the cases into three classes: (1) Spondylitis affecting the entire column, in which case it is total; when localized in the cervical or lumbar region it is called segmen-

tary spondylitis. These cases are characterized by pain of moderate severity and commonly terminate in resolution. (2) Cases in which the column is involved throughout with the possible exception of the cervical region, in which rigidity rapidly appears, accompanied by a severe pseudoneuralgia and definite ankylosis of the column. (3) This group is characterized by intense pain, accompanied by rigidity of the whole column, but finally terminates in recovery. This form of spondylitis is divided into simple, ankylosing, and pseudoneuralgic. Of the causes of the condition in the pseudoneuralgic form, which is the least frequently recognized and which commonly has less deformity, there was one case following acute articular rheumatism, chronic articular rheumatism in five cases, gout one, gonorrhea two, and of uncertain etiology one. Valuable results were reached in the treatment of these cases by hot baths and massage.

The Blood in Malignant Disease.—

Von Donati (*La Riforma Medica*, No. 145, 1901), as a result of numerous examinations of the blood in patients suffering from carcinoma and sarcoma, comes to the conclusion that there is no special type that is characteristic of malignant disease. A thorough examination of the blood is of importance in the prognosis of these cases, as it shows to some extent how far the organs are involved in the morbid process. In most cases of malignant disease the hemoglobin is diminished, and where such a condition is noted it raises a strong suspicion of malignant disease in the absence of obvious causes for the condition. The red blood-corpuscles are commonly diminished in proportion to the hemoglobin. The anemia is of a chlorotic type. The red corpuscles are altered in form and volume in distinct cachexia. Observers have occasionally found in tumors of the digestive apparatus normoblasts and megaloblasts. Occasionally an absolute and relative leucocytosis is found, but the latter when present is of no special significance. The normal relation between the different kinds of white corpuscles is altered, but this is variable in different cases and sometimes at different times in the same case, hence it has little or no diagnostic significance.

The Uric Acid Diathesis.—

J. H. Salisbury, in the April and May issue of the *Chicago Clinic*, comes to the following conclusions as to nature and deposition of uric acid. The urates and the uric acid are thrown down by the acidity, concentration, and temperature of the urine. The amount

of precipitation is only in part dependent upon the amount of uric acid contained in the fluid. The amount of uric acid excreted in health is on the average fairly constant in the same individual, but varies within wide limits in different individuals and at different times in the same person. The amount of uric acid excreted is in health entirely dependent upon the kind and quality of the food. The excretion of increased amounts of uric acid cannot be taken as evidence of disease unless the kind and amount of food is known, and when the normal amount excreted by the individual is determined. The evidence that uric acid produces the phenomena of gout is not convincing, and it has not been shown conclusively that uric acid is increased in diseases attributed to the uric acid diathesis.

SURGERY.

The Treatment of Renal Tension by Surgical Means.—

Reginald Harrison, in *The Lancet* of August 3, 1901, referred to the fact that in 1896 he had drawn attention to the cases where patients suffering from albuminuria and other renal symptoms which might have been produced by stone or other removable cause had completely recovered after an exploratory operation on the kidney by puncture or incision, though no calculus or gross lesion was discovered. It might be inferred from these results that there was a relief of tension and congestion, favoring a natural circulation in the organ. Tension as a factor in kidney disease has not hitherto received adequate attention.

Six cases are given illustrating renal tension. The first was one of scarlatinal nephritis, the second of nephritis from exposure to cold and damp, the third one of subacute nephritis following influenza, and in a fourth nephritis was complicated by an injury. All four cases were characterized by the presence of albumin in the urine. The fifth and sixth cases represented other phases of renal tension. The best means of arriving at an opinion as to what cases the relief of tension may be applicable to can be reached by studying certain types of cases. There are three types of acute nephritis which come under notice in connection with scarlet fever. The first is the common type, where there are varying degrees of fever rash and desquamation, with blood, blood-clots, and epithelium in the urine. Cases included in this large class certainly do not require surgical

attention, for recovery is steadily progressive, and after a few weeks complete recovery takes place.

The second group of cases, though at the beginning apparently belonging to the preceding class, does not end the same way. Convalescence is not marked by the disappearance of albumin and casts, but the kidney disease remains stationary or it becomes worse. These are the cases which furnish a considerable proportion of Bright's disease.

The third group includes what may be called the malignant type of scarlatinal nephritis. Here the kidneys appear to be overwhelmed and the pathological changes supervene rapidly; the suppression of urine occurs, and death quickly follows from uremia, with coma and convulsions. After death under these circumstances it is usual to find the kidneys intensely congested and the capsule tense and shiny.

In the last two groups of cases the relief of tension by surgical operation is indicated. The patient being anesthetized and placed in position for a lumbar nephrotomy, the kidney is exposed by a transverse incision through the loin, parallel with and a little lower than the last rib. In spare subjects an incision of three inches suffices. The various layers of muscle and fascia are divided until the suprarenal fat is seen. The connective tissue covering this is opened with probe and forceps, when the kidney is recognized. The organ may be pushed into the incision by the hands of an assistant pressing upon the abdominal wall. If the organ is to be explored the kidney may be withdrawn for more thorough examination. This is not necessary where tension alone exists.

The incision for relieving tension is preferably made along the convex border. Occasionally the incision may be indicated at other portions, as extravasation of the blood and congestion are not evenly distributed throughout the organ. Punctures may be made where the engorgement seems greatest, but it is well to avoid the pelvis of the organ. The drainage-tube is then carefully inserted so as to remain in contact with the kidney, and the wound is closed. Drainage is an essential part of the process and should be continued for days and even weeks before the tube is removed. The drainage-tube should remain in a week or ten days, but this entirely depends upon the nature and degree of the discharge. On removal of the tube the wound usually heals rapidly. He has never seen a permanent urinary fistula follow the operation. Unless there is something to indicate the kidney that is most involved it is not a matter of importance which organ is chosen; in double nephritis the relief of tension in one organ aids the other.

Sterilization of Hydrochlorate of Cocaine.—

W. C. Riley, in the *Medical Record* of August 10, 1901, emphasizes the importance of a sterilized solution of cocaine, especially since spinal anesthesia has become so important. Unquestionably many of the failures in spinal anesthesia have been due to an improper preparation of the cocaine. He has witnessed over 200 spinal anesthesias with cocaine, selected and prepared in the manner to be described, and in which the doses never exceeded three-tenths of a grain, without one failure in securing complete analgesia, lasting from one and one-half to three hours.

He speaks of the differences in quality of the cocaine on the market, and attributes not a little of the want of uniformity in its use to varying qualities of the drug. Regarding its toxicity, it has been fashionable to refer to some idiosyncrasy on the part of the patient, without giving a thought to the possible impurities of the drug. The anesthetic properties of any preparation of coca leaves depend upon the amount of alkaloid contained in it. The intensity of the effect will be diminished in exact proportion to the amount of other substances, inert or active, which may be present. In comparing several brands it was found that the total amount of alkaloid in cocaine varied from 90 to 100 per cent of the theoretical quantity. There are differences in color in the samples found upon the market, varying from perfectly white to a grayish-yellow or light-brown. The organic substances are largely worthless adulterants, and are harmless, except in so far as they render exact dosage impossible.

In view of these facts can it truthfully be said that cocaine poisoning is always due to cocaine, or failure to get spinal analgesia due to any adherent fault in the method? In choosing muriate of cocaine one should select that occurring in anhydrous, well defined, rather large, colorless, and nearly odorless crystals. Every original package, after the crystals have been reduced in a mortar to a moderately fine powder, should be tested for isatropyl-cocaine, the most deleterious of all constituents. It is an active cardiac depressant and contributes to or causes many instances of heart failure in which cocaine has been used.

Hydrochlorate of cocaine is not readily decomposed by heat. The dry salt may be kept at a dry sterilizing temperature without losing any of its peculiar anesthetic qualities. Prolonged boiling of cocaine in solution destroys its anesthetic properties to a considerable extent, and heretofore the only method of preparing approximately sterile solutions was by fractional sterilization, at 80° C. for fifteen min-

utes on three different days. Dry sterilization, according to the writer, can be carried out by taking carefully selected cocaine, reducing it in a mortar to fine powder, and then subjecting it to a temperature of 110° C. for twenty minutes. It is then placed in a clean, dry bottle with a tightly fitting rubber stopper. Small graduated vials or glass tubes are taken, carefully cleansed and flamed. When cool the cocaine is weighed and placed in them. The mouth of the tube is then stopped with a plug of dry sterilized absorbent cotton. The original packages are heated to a temperature of from 145° to 150° C. for a period of from ten to sixty minutes. The mouth of the tube is then closed with a well fitting cork or sealed by drawing out the end of the tube. This secures a definite quantity of cocaine absolutely sterile. All that is necessary at the time of operation is to add sterilized water to the container up to the mark shown on the container, which gives a two-per-cent solution.

Electrothermic Hemostasis in Abdominal and Pelvic Surgery.—

A. J. Downes, in the *Journal of the American Medical Association* of August 17, 1901, says that the ordinary methods of arresting hemorrhage have some objections. The electric cautery leaves carbonized tissue, a slough, and a danger of subsequent hemorrhage. Silk ligatures of sufficient size to secure large blood-vessels are open to serious objection. Sterile absorbable ligatures come the nearest to a solution of the problem. The angiotribe without the addition of a ligature is slow, and with safety cannot be removed much under three minutes. If applied four times during a single operation nearly a half-hour is consumed. Further, there is something missing in the instrument, namely, sufficient heat to cause coagulation of the albuminoid constituents of the compressed area.

The writer has improved upon the Skene instrument, adopting a strip of irido-platinum for the heating medium and enclosing the conducting cords in a metal case, which permits of thorough sterilization. He has constructed an electrothermic angiotribe with the conducting poles emerging at right angles from the proximal portion of the heating blade. An essential in such an instrument is that a battery with proper electromotive force should be employed, and that in the circuit there should be an amperemeter. With such an instrument it is easily learned just how much current will be required and for how long a time. This lends exactness to the method.

Certain advantages are claimed for this complicated instrument

over and above the control of hemorrhage. It is said there is freedom from pain following abdominal operations; there are few or no perineal adhesions between the bowel surfaces. If a ligation is to be made of a mass of tissue, electrothermic pressure is of great importance. By it the stump is made painless, non-adherent, the lymphatics are sealed, and its mass is reduced to the smallest possible bulk.

Operation for Femoral Hernia.—

R. H. Perry, in *The Lancet* of August 3, 1901, describes a means of closing the crural canal from above, in place of the older method from below. In this operation no cup-shaped remnant of the canal is left, and there is no danger of injuring the femoral vein. A curved incision is made over the inner end of Poupart's ligament with the convexity downward, and the flap is turned up and the region cleared until Poupart's ligament is exposed. The sac is then opened, its contents examined and if possible replaced. An incision is then made through the external oblique above and parallel to Poupart's ligament, and a similar division through the transversalis fascia. If it has been impossible to empty the sac, this can be done by manipulation above Poupart's ligament. In this way he has relieved strangulation without cutting Gimbernat's ligament. A catgut ligature is now passed through the fundus and neck of the sac and through the conjoined tendon and transversalis fascia, the tightening of this ligature drawing up the crumpled sac beneath the abdominal wall. A strong suture is then carried by a sharp needle through the conjoined tendon and transversalis fascia to a point opposite the outer margin of Gimbernat's ligament, passed horizontally beneath the muscle and fascia for about an inch, and then brought through them. The inner end of the suture is passed through Poupart's ligament and both are brought out in the groin. A second and third suture are applied in the same way. The tightening of these sutures draws the conjoined tendon and transversalis fascia over the crural ring like a curtain. The sutures are then tied in such a way as to avoid pressure on the vein.

Reduction of Dislocations of the Shoulder by Continued Traction.—

J. G. Sheldon, in the *Journal of the American Medical Association* of September 14, 1901, has followed Stimson's method in reducing dislocations of the shoulder. This consists in placing the patient upon the side with the dislocated member extending through a hole in the mattress. There is then attached to the arm a weight of

from four to six pounds, which, exerting moderate traction at right angles to the long axis of the body, effects reduction in a few minutes. A similar apparatus is extemporized by placing two tables near each other and allowing the dislocated arm to hang down between them.

The writer has treated six cases by Stimson's method, in all of which reduction was secured in six minutes. It occurred to him that carefully applied muscular force would be quite as efficient as weights, and accordingly the next case that came under his observation was treated in this way, the results being equally good. After he had pulled upon the arm gently but continuously for a period of about two minutes, he felt a slight twist of the humerus, and found that the dislocation had been reduced. He has tried the method in seven cases since, and has succeeded in all of them. In no case was it necessary to apply the traction longer than four minutes, and in most instances a shorter period was sufficient. The writer claims that it has succeeded in the twenty-three cases in which it has been tried, and in no case so far reported has it failed. In no case have patients complained of pain during a reduction. There is no danger of injury to the soft parts, as the force used is not sufficient to jeopardize them. Anesthesia is unnecessary. The method has no disadvantages, but there may be cases of shoulder dislocation in which it is not applicable. Most writers advise against traction on the arm at right angles, on account of the danger of injuring the vessels and nerves, but the writer thinks that this does not hold with the method under consideration, as slight force is employed.

Indian Ophthalmic Practice.—

The *Indian Medical Gazette* recently published a special number giving the experience of surgeons in India in the treatment of diseases of the eye. The statistical figures that have accumulated of cataract operations in India are something enormous. One would infer that this disease was especially frequent there. Colonel Pope, of the Indian Medical Service, and superintendent of the Ophthalmic Hospital at Madras, has made upward of 7000 extractions. Twelve other surgeons report extractions varying from a few hundred to several thousand. The sum total of cases reported by these few surgeons amount to nearly 25,000. The results are remarkably good. Sometimes three hundred successful consecutive extractions were made. As with European operators, such a long series of successes is often followed by a group of cases in which there is severe

inflammation or suppuration, by which the average is at once brought down.

Colonel Pope always uses atropine before operating to determine the relation of the iris to the lens. Care is exercised in sterilizing the conjunctival sac and the instruments. The capsule is divided with a needle and the extraction performed without iridectomy. The incision is always a large one, exceeding three millimeters. A conjunctival flap is always made, as a result of which prolapse of the iris is exceedingly rare. A pad and bandage are kept on for a day or two, but exposure of the eye to the air is regarded as a distinct advantage in the treatment of the wound. If conjunctival inflammation results the eye is cleansed with a saturated boric acid solution and a solution of nitrate of silver three grains to the ounce is applied. If suppuration of the cornea occurs atropine is used, and if iridocyclitis occurs the eye is removed to prevent sympathetic ophthalmia. The general rule is to extract without iridectomy.

Dupuytren's Contraction of the Palmar Fascia.—

Noble Smith, in the *New York Medical Journal* of August 31, 1901, says that the impression has prevailed in England that this affection is very rare in women. He has found eleven cases of clearly defined Dupuytren's contraction among 444 women.

It is rare to have this contraction begin before the age of 50 The writer has observed a case in the very early stages. A man, aged 50, developed a nodule about the size of a pea, situated subcutaneously at the base of the ring finger of the left hand. The patient first noticed the nodule because of slight pain in the part. The nodule was distinctly defined and painful on pressure. A few days later the palmar fascia extending from the nodule to the base of the ring finger became slightly contracted. Under constitutional treatment the nodule and the contraction disappeared, leaving only a slight hardening of the fascia in the neighborhood. The writer believes that this was a case of incipient Dupuytren's contraction.

In the treatment of the early cases that came under his observation, he used subcutaneous division of the contracted bands by as few incisions as possible. Since then he has learned the value of multiple incisions and punctures of the nodulated portions of fascia, in addition to sections of the contracted bands. These multiple incisions cause a rapid absorption of the hardened tissue. There is not much tendency to recurrence, but even should the disease return the treatment is simple and effective.

Operation for Pendulous Abdomen.—

A. E. Spaulding, in the *St. Paul Medical Journal* for October, 1901, describes the case of a patient who sought relief for a pendulous abdomen that had been a source of annoyance for several years. In a standing position the abdomen hung down in a fold that extended within two inches of the knees. In the recumbent posture it was a flabby mass, gravitating to either side, overhanging the crests of the ilia. She had been compelled to wear corsets of special make and proportions which forced the abdominal organs upward and caused a feeling of suffocation, owing to excessive pressure. The usual remedies for obesity had entirely failed to reduce the mass.

An operation was performed consisting of an elliptical incision beginning above the costal cartilage and extending down to Poupart's ligament. The incisions were made upon both sides and extended through the skin and subcutaneous fat to the fascia of the abdominal muscles. After the removal of the redundant tissues, the incisions were brought together by deep silkworm-gut sutures. The result of the operation was excellent. The abdomen was well rounded and not in the least pendulous.

[This case is one of unusual interest. It can scarcely be spoken of as a pendulous abdomen, as it is evident that the muscular wall of the abdomen and the abdominal contents formed no part of the dependent mass, which consisted entirely of relaxed skin and subcutaneous fat. According to the description, it was simply a diffuse lipoma.]

Tendon Sutures from the Ox.—

E. M. Lundholm, in the *St. Paul Medical Journal* for August, 1901, says that tendon material is the ideal suture. Kangaroo tendons have not been popular because of the difficulty of sterilizing, and great expense; in addition they present a solid non-porous coagulated mass, which does not admit of sterilizing by dry heat because the moisture is not given off. If the kangaroo tendon be first twisted, which makes it porous, it can safely be heated to 280° F. He began his first experiments by splitting sutures from the leg tendons of domestic animals. Such a suture prepared without twisting shares the objections of the kangaroo tendon. In a visit to Lapland during the summer of 1900, a native woman prepared for him several hundred twisted strands made from tendon of the reindeer. It was found that these were as readily sterilized as catgut in between thirty to forty operations in which these tendons were

used; union by first intention was obtained in all but one. He has never had any difficulty in the absorption of this suture material even when strands of large size were used. Since the supply of reindeer tendons failed, he has prepared sutures from the lumbar aponeurosis of the ox. These have a length of from 15 to 25 inches and may be fine or coarse. They are stronger than the same size of catgut, and he thinks superior to sutures obtained from the reindeer. They can be sterilized by dry heat the same as catgut.

Gelatin in the Control of Hemorrhage.—

Joseph Sailer, in the *Therapeutic Gazette* of August 15, 1901, gives his own experience and the result of an analysis of the literature on the use of gelatin in the control of hemorrhage. Gelatin increases the coagulability of the blood, whether applied locally, taken by the mouth, or injected subcutaneously or intravenously. Applied locally it is harmless, but it may favor bacterial growth and should always have some antiseptic added to it. Used subcutaneously or intravenously it is harmless, and when the technique is perfect, practically painless. The solution should be sterile, and the dose should vary from one to three grammes of pure gelatin. When administered by the mouth, from one to three hundred grammes, or perhaps more, should be employed daily. It is of advantage in any form of local hemorrhage and it checks certain forms of internal hemorrhage. It is the best remedy at our command in the treatment of hemophilia, and is of great advantage for purpura hemorrhagica and in hemorrhagic forms of infectious disease. Its single contraindication is acute nephritis.

Indications for Operation in Gastric Ulcer.—

A. T. Cabot, in the *Boston Medical and Surgical Journal* of August 29, 1901, says that acute hemorrhages should rarely be treated by operation; the results of operation have not been good, and medical treatment has, on the whole, been satisfactory. When a hemorrhage has been frequently repeated, and if severe in amount, it will demand operative treatment as soon as its recurrent character is plain. Small, frequent hemorrhages, threatening anemia, give a clear indication for operation. Perforation of the stomach, either acute with general peritonitis, or chronic with surrounding adhesions and perigastritis, demands instant operation. When an ulcer runs a chronic course, with a strong tendency to recurrence, and gradually diminishes the patient's capacity for work and for the enjoyment of

life, an operation is indicated, especially when the patient is so situated as to be dependent upon daily labor for his support and unable to closely regulate his diet.

Goldbeater's Skin as a Dressing for Operative Wounds.—

Edgar A. Day (*American Gynecological and Obstetrical Journal*, August, 1901) has used goldbeater's skin court-plaster as a dressing for operative wounds. The plaster is made by manufacturing pharmacists; it is thin and pliable and resembles tissue-paper. It is transparent and sufficiently fibrous in structure to prevent tearing by any direct strain to which it may be subjected. The plaster is adhesive when wet, but dries quickly and adheres firmly to very uneven surfaces. It is possible to obtain this plaster directly from manufacturers in small aseptic containers, in sufficient quantity for one operation.

THERAPEUTICS.

The Physiological Cure of the Morphine Habit.—

W. O. Jennings, in *The Lancet* of August 10, 1901, says that the craving and wretchedness experienced by the individual addicted to morphine, in attempting to give up the drug, are always aggravated by certain dietetic and hygienic errors which these patients commit. During the last ten years he has had frequent opportunity of verifying these observations, and he now thinks that a regimen can be followed up which will, to a large extent, enable the individual to give up the use of morphine without special suffering.

Every patient who shows a desire to begin treatment does not necessarily wish to be relieved of the habit. Many patients under the solicitation of relatives commence treatment; but with the disappearance of the symptoms which cause alarm their first resolution gradually fades, and they give up not because of the suffering or discomfort, but because it has turned out that there is not sufficient earnestness of purpose to carry out what they are momentarily persuaded or frightened into undertaking. Besides these two classes of patients—those who would get well if the craving could be moderated and those who do not intend to do so—there is an intermediate class: those who do want to get well and who have no real craving that prevents, but who suffer from a hysterical neuromimetic craving. In the latter cases tact is necessary. Such patients should never know what they are taking, and the treatment should be largely by suggestion. One such case, when she knew that the

morphine had been reduced to a very small dose, showed the most acute distress. A temporary return to larger doses followed by a rapid reduction without her knowledge caused not the slightest discomfort.

In the treatment it is a *sine qua non* that the patient give up liberty. This is absolutely necessary to guard against temptation, and shows at the start the desire of the patient to be cured. If the morphine is associated with other stimulants, such as alcohol or cocaine, the latter should be promptly suppressed, and this can be done without causing the slightest distress.

The writer is a partisan of the gradual reduction method, and the rapidity with which the drug may be reduced depends upon the individual case and the ability to control the suffering and craving by medicinal and hygienic measures. As a rule the drug may be suspended in from ten days to a fortnight; it is desirable that the reduction should be as rapid as possible. As soon as the quantity injected hypodermically is as low as two grains, rectal administration should be substituted for the injections. Two grains seems to meet the vital requirements; when a larger quantity is administered it appears unchanged in the urine. From this point downward twice as much should be given by the rectum as is suppressed by the skin. In consequence four grains is given by the rectum when the hypodermic injection of two grains is suppressed, but this is not in any sense a relapse. The great point to accomplish is the renunciation of the syringe. The effect of morphine given by the rectum is very different from that of the same drug given hypodermically. There is no sensible stimulation in the rectal administration.

In preventing craving and suffering, heart tonics are of the utmost importance. Valuable data are obtained from the use of the sphygmograph, as a flattening of the apex of the tracing shows the diminution of the morphine; if this sign is not found it is a sure indication that the patient is taking the drug secretly. To assist the heart's action the writer administers sparteine or digitalis. The stomach contents are always hyperacid, hence bicarbonate of soda is given in triple doses, and it is now recognized by the Paris School of Medicine as almost a panacea. The bicarbonate will not help to the extent of suppressing the craving by itself, but it relieves the overacidity just as heart tonics relieve cardiac sluggishness. The remaining important means is the hot-air bath, the good effects of which are largely due to its tonic and sedative action. It may possibly act as an eliminant of the salts of morphine.

As the hyperacidity is an important cause of the craving, a moderate and non-alcoholic diet should be insisted upon.

Inunction versus Intramuscular Injection in the Treatment of Syphilis.—

C. F. Marshall, in *The Lancet* of August 24, 1901, says that a comparison of the different methods of treating syphilis is difficult, owing to the length of time which the cases must be under observation. His comparison of the value of intramuscular injections and inunction in the treatment of syphilis is based upon sixty-nine cases which were under continuous observation while he was resident medical officer at the London Lock Hospital, most of the patients being under treatment for more than a year. Thirty-seven of the cases were treated by intramuscular injections and thirty-two by inunction, during the active symptoms of secondary syphilis. When the active symptoms had cleared up the patients were put on a course of pills.

The method of intramuscular injection was that introduced by Mr. J. A. Bloxam. Ten minims of a solution of sal alembroth containing one-third of a grain of the salt was introduced by means of a platinum iridium needle thrust deeply into the muscles of the buttocks. The injections were given once a week, first upon one side and then upon the other.

The inunctions were made with gray ointment composed of one part of mercury, one part of lanolin, and one-half part of olive oil. About one-half of this was rubbed daily into different parts of the body, the rubbing lasting about twenty minutes, a warm bath being taken before each inunction.

There were sixteen relapses of the disease during or after treatment by intramuscular injection, including no less than four cases of severe iritis and one case of early tertiary syphilis. Of the thirty-two cases treated by inunction, there were only seven relapses, two of which were doubtful, and only one case of iritis. The results in these cases justify the conclusion that relapses are twice as frequent with the injection treatment as with the inunction method.

Chloretone in Epilepsy.—

D. J. M'Carthy, in the *International Medical Magazine* for August, 1901, finds in chloretone an excellent substitute for the bromides, in cases where they have failed of the desired effect or where for any reason they cannot be administered. A patient is described, aged 48, who had epileptic attacks at irregular intervals, and who had been taking bromide in half-drachm doses for a year. He was unable to perform his usual work because of the mental

torpor and lack of concentration which the bromides produced, and could not give up their use because of the return of the attacks. In this case chloretone in fifteen-grain doses gave excellent results, with none of the depressing effects of the bromides. In a group of cases in which the bromide failed to relieve the epileptic seizures, chloretone sometimes gave excellent results. In the case of a woman with Jacksonian epilepsy secondary to a migraine, beginning early in childhood, the bromide failed to relieve the spasm of the head, neck, and arm. Chloretone was substituted in fifteen-grain doses at night, which was later reduced to seven and a half grains, with no return of the trouble. Previous to the administration of the chloretone the attacks occurred several times weekly under large doses of the bromides. In some cases of true epilepsy where the bromides had little if any effect, the seizures ceased entirely for a time under chloretone.

The writer concludes that in chloretone we have a drug which in selected cases is an excellent substitute for the bromides. It gives good results under decreasing doses, after the primary effect is obtained. The drug is given in capsules, and the dose is sufficient in the beginning to produce a hypnotic effect. In that large class of epilepsy in which the fits occur only at night, chloretone is of especial value in reducing the number of seizures. The dietetic, hygienic, and constitutional treatment is to be rigidly enforced in conjunction with the administration of the chloretone.

Bloodletting.—

J. F. Briscoe, in the *Clinical Journal* of August 28, 1901, gives us some statistics on venesection. He has asked the house physicians of eleven London medical schools how often venesection was performed in their hospitals and what were its special indications. Various answers were returned, some saying that it was very seldom performed, and others, occasionally. From these the writer believes that a useful therapeutic agent has been cast aside with mistaken indifference.

Bleeding is indicated in certain cases of uncomplicated mitral regurgitation when compensation has become inadequate, particularly when there is hemoptysis. In such cases from six to twenty or more ounces of blood may be withdrawn with obvious advantage.

Another indication for bleeding is where there has been a sudden deprivation of air with a consequent distention of the right heart. This form of cyanosis occurs in bronchitis and all gaseous complications. In such cases bloodletting is indicated, but it must be thor-

ough to be of use. In the bleeding we must discriminate between two conditions:

(*a*) When a patient is choked and breathing is labored, the veins are distended and the heart dilated, then bleeding is indicated. Such conditions are accompanied by a small pulse; when the right heart is relieved the pulse becomes full.

(*b*) In bronchitis, when the patient is choked and the right heart is acting well; the surface is of a leaden hue and there is free circulation of venous blood in the arteries; the pulse is good, but of high tension; the venous system and liver are not engorged. In such a case bleeding is not indicated, but such a patient would be benefited by an emetic.

Bleeding is contraindicated in the weak, broken-down, and in old men and drunkards. It is not indicated in acute bronchitis.

In capillary bronchitis and in pneumonia, venesection may be useful—in the former disease where there is distention of the right heart, and in the latter where there is a large extent of lung involved with symptoms of cyanosis and great cardiac weakness. In pleurisy, venesection is often indicated.

In acute nephritis and uremia, bloodletting is sound practice.

Untoward Effect of Bromides.—

C. F. Darnall, in the *Medical Record* of September 7, 1901, describes the case of an opium habitué to whom he was called, who was suffering from an urticaria-like wheal on the left thigh just above the knee. After a time this became vascular, and the surrounding cellular tissue was swollen and indurated. In a few days over twenty of these spots appeared at different locations on the thigh and passed quickly into a gangrenous stage. A few weeks previously it had been decided to try the bromide treatment in the cure of the morphine habit. She was given a prescription containing two ounces of sodium bromide to six ounces of water, with directions to take it in teaspoonful doses every two hours until she experienced the sedative effects. When the morphine was reduced she began to use the solution freely, and without a further prescription from the physician the bottle had been refilled twice, so that up to the time the gangrene appeared she had taken in all six ounces of the bromide. For two weeks after the first sore appeared she was under the influence of the bromide; she was stupid, had scanty urination, poor appetite, and the breath was foul. Recovery was very slow. About the eighth week the first of the sloughs was removed. There were slight constitutional effects aside from those

we have mentioned. The morphine was continued until after the gangrene was recovered from, after which the patient made a good recovery.

[The above adds another one to the serious complications which have followed the bromide treatment of the morphine habit. The mortality is considerable, probably amounting to from 15 to 20 per cent. Taking it all in all, the bromide treatment for the cure of the morphine habit is the most dangerous of all the specific treatments so far devised.]

Bifocal Lenses.—

John E. Weeks, in the *Medical Record* of August 24, 1901, calls attention to the annoyance of bifocal lenses, which he thinks is due to unnecessarily large size of the reading lens. The Franklin bifocal lens was divided into equal parts. Later the "paster" was devised, in which the lowermost segment was curved with the convexity upward and occupying about one-third of the area of the glass.

He has devised a paster which is much smaller than those heretofore in use. It is oval, and does not come to the lower edge of the glass. It measures fifteen millimeters in its horizontal and ten millimeters in its vertical diameter. This at the ordinary reading distance gives approximately a visual field of 12.5 x 19 centimeters. If the oval disk is placed two millimeters above the lower edge of the distance lens, it will permit of clear distance vision below, sufficient to enable the wearer to see the curb, descend stairs, etc., without trouble; in fact, to be free from the great annoyance incurred by the use of the ordinary bifocal glasses. The dispersion of the rays of light occasioned by the edge of the paster is minimized by making the edge very thin. The writer has worn such glasses and finds them excellent for all purposes, and in his operative work they are particularly serviceable.

The Medical Treatment for Cancer of the Stomach.—

Charles Robin, in the *Medical Press and Circular* of July 24, 1901, says that gastric carcinoma is incurable, hence it seems absurd to speak of its treatment. When he was a student he was painfully impressed with the hopeless manner with which these cases were handled, and the indifference shown toward them by physicians and surgeons. We must never forget that our means of diagnosis in carcinoma of the stomach are by no means perfect, and if we exhaust all at our disposal there will still remain a certain number

of cases presenting all the clinical symptoms of gastric carcinoma that are not examples of that fatal condition; hence every case should be carefully observed and treated on its merits.

Condurango was recommended for the cure of cancer thirty years ago; but the results obtained with it were so slight that it has been abandoned. It is nevertheless a valuable remedy in gastric carcinoma. It is given in the form of an extract, a tincture, or a decoction. The decoction is made with two and a half drachms of the drug in eight ounces of water, boiled down to five ounces. It is then filtered and fifteen drops of hydrochloric acid added. Three or four tablespoonfuls are given daily.

Chlorate of soda is a drug which markedly ameliorates the symptoms of gastric carcinoma. Chlorate of potash had formerly been given in cancers, but was found to rapidly reduce the hemoglobin of the blood. This is not true of chlorate of soda, which may be administered in considerable doses for a long time. It cannot be claimed that it has a specific action on gastric carcinoma, but it increases the strength of the patient and stimulates the appetite. It should not be given when there is albumin in the urine.

Mydriatic Effect of Pilocarpine.—

Dr. Lilienfeld, in the *Centralblatt für Praktische Augenheilkunde*, calls attention to the observation which has been frequently made that the internal administration of pilocarpine, instead of causing a contraction of the pupil, acts as a mydriatic. This effect is of considerable importance, as lotions of pilocarpine are often prescribed in the treatment of glaucoma. This action of pilocarpine is thought to be due to atropine contained in it as an impurity. The action, however, is due to another alkaloid which is found in jaborandi, known as jaborin. This substance acts as a mydriatic in the same way as atropine. Even in the best preparations of pilocarpine a certain amount of jaborin is found. This can be proven by its mydriatic effects in cases in which the solution made from pilocarpine is allowed to age. This weakens the pilocarpine but does not affect the jaborin.

Acetyl Salicylic Acid in the Treatment of Rheumatism.—

C. A. Protin, in *Merck's Archives* for July, 1901, says that in this substance, which is sold under the trade name of aspirin, we have one of the salicylate group, which is devoid of the unpleasant after-effects which sometimes follow the administration of salicylate of sodium and salicylic acid. Aspirin has no bad effects on the stomach

and does not impair the appetite. It does not affect the heart or nervous system. It is almost tasteless, and is easily administered in sweetened water. It is insoluble in acid fluids; hence it passes the stomach and is decomposed and absorbed from the intestines in the form of nascent salicylic acid. He reports five cases of rheumatism in which he has used the drug. In some it exhibited a marked anodyne effect; in others an antipyretic influence.

OBSTETRICS, GYNECOLOGY, AND PEDIATRICS.

Continuous Overextension of the Spine in the Treatment of Pott's Disease in Childhood.—

Royal Whitman (*Pediatrics*, Sept. 1, 1901) says that the operation for forcible correction of the deformity in Pott's disease, while it is likely to fall into practical disuse, has effected a distinct advance in our knowledge of the treatment of this affection. It has shown that the capacity for new bone formation is not sufficient to replace the loss of a single vertebral body, but it has shown that a distorted spine may be straightened with comparative ease. When the local disease has advanced to the destructive stage and there is actual contact of the eroded segments above and below, there will be a persistent recurrence of the local deformity after forcible correction. Pressure and friction are the important factors that contribute to the destructive process and an increase in the deformity. The actual separation of the diseased surface offers the best opportunity for repair.

In children under three years of age, recumbency should be the treatment of Pott's disease as a routine measure. The writer uses a modified stretcher or Bradford frame, which he has modified by bending the frame so as to force the spine into overextension, the aim being first to overcome deformity, and finally to obliterate all the curves of the spine by bending the body backward. The frame is made of ordinary galvanized gas-pipe or of steel tubing of small diameter. It is about four inches longer than the child and is about four-fifths as wide. The cover is made of strong canvas, suitably protected in the center by a rubber cloth. Upon this two thick pads of felt are sewed, about seven inches in length and three-fourths inch in thickness, so placed as to protect the spinous processes that are the seat of the disease from direct pressure. The child, wearing only an undershirt and stockings, is placed upon the frame, the shoulders are fixed by an anterior brace, and traction is made on

the head and legs, if needed. As soon as the patient has become accustomed to the restraint, the spine is extended by bending the brace so as to greatly overextend the spine, thus separating the diseased vertebral bodies. Once a day the child is taken from the apparatus, the back is carefully inspected and powdered, and the frame is rearranged.

The effect of this continued fixation upon the back is not merely to change the contour of the spine, but the trunk as well. As this frame is simply a horizontal brace, the child may spend as much time in the open air as would be practicable with any other appliance used. Pain and discomfort are relieved almost immediately, and there is an improvement in the general condition of the patient. The growth of the trunk, so often checked by the disease and by the deformity, appears to progress with normal rapidity. Horizontal fixation must be supplemented by the usual supports, when the erect attitude is again assumed. Its duration varies from six to eighteen months.

Operation for Radical Cure of Cystocele.—

J. P. Taulbee, in the *American Gynecological and Obstetrical Journal* for September, 1901, says that the dismal failures reported in the usual operations for cystocele have led him to study anew the question of suspending the bladder. The patient upon whom the operation was performed was 63 years of age, and had a prolapse of the base of the bladder, the size of a large orange. The prolapse had lasted for six years, the greater part of which time the patient had remained in the recumbent position, as in this way alone could relief be obtained. All of the usual temporary methods were employed, and a special pessary was devised to retain the prolapse; this, in common with other methods, failed.

The patient was prepared for abdominal section, was anesthetized, and placed in the Sims position. The bladder was emptied by a catheter and thoroughly irrigated with a sterile solution. The protruding mass was reduced and supported by a broad retractor in the hands of an assistant. The uterus was grasped by a vulsellum, and with blunt scissors a section commenced anterior to the cervix, the same as for a hysterectomy. The index finger was introduced into the cul-de-sac and the peritoneum severed from its attachment to the posterior surface of the bladder. The wound was then packed with gauze and the patient changed to the dorsal position, with the hips slightly elevated. The abdomen was then opened in the middle line, the distended bladder was brought into view, grasped by dull fixation

forceps, and lifted upward and outward. Two fine, straight needles, threaded with silkworm-gut, were passed through the muscular coat of the viscus laterally from above downward, penetrating the abdominal wall a distance of one and one-half inches. The outer coating of the bladder was then denuded in the middle line between the ligatures; the freed ends of the ligatures were then thrust through the abdominal wall, their exit being made to correspond with their exit from the bladder. The free ends of the suspension ligatures on either side were drawn tight and fastened by tying over rollers of sterile gauze. The bladder was again emptied and the patient placed in the Sims position, and the gauze packing removed. The excoriated surfaces of the peritoneum were approximated by catgut. The vagina was narrowed by removing an elliptical section of the mucous membrane at the point of the original incision in the anterior wall. The divided portion of the mucous membrane was brought together.

At the end of three weeks the bladder had a capacity of one pint, and was apparently completely emptied at each micturition. At the end of seven months there was no tendency to recurrence.

Fetal or Congenital Rickets.—

Henry Ashby, in *The Lancet* of August 17, 1901, says that many of these cases are not rickets but achondroplasia. In many such cases the superficial likeness to rickets is great. The long bones are stunted and bent and the epiphyses enlarged. Stoeltzner recently examined a fetus affected with what he classed as fetal myxedema. The case resembled rickets, but was certainly not this condition. Pathologic processes probably occur in intra-uterine life, which conduce to deformities and stunting of the bones apart from rickets.

An infant was brought to the Manchester Children's Hospital, having sustained numerous fractures but with no history of violence; the fractures involved the right humerus and radius, and the left humerus, ulna, and femur. There was marked craniotabes. The ribs were abnormally soft and bent inward during inspiration. There was beading of the ribs, but no enlargement of the epiphyses of the long bones or marked curvature. The infant was well nourished and had apparently been born at term. It was fed on cow's milk and water. The fractures were treated and united. When the child was six weeks old the right femur fractured, but this also repaired well. The softness of the occipital bone was so marked that it became very much flattened by the pressure

of the head on the pillow. When the infant was nine months of age it had cut two teeth and was bright and intelligent, and was without signs of rickets or deformities of the bones.

In discussing the nature of the case the writer says that it is one that can scarcely be classed as osteomalacia, as this disease goes from bad to worse; it does not occur in infants, and only exceptionally in children. It should not be classed as a case of fragilitas ossium, as in this disease the bones are simply brittle and there is no tendency to bend. Syphilis produces an osteochondritis or epiphysitis, but not so far as he is aware a tendency of the bone to bend as well as to break. The writer attributes the condition to the fact that the mother was 46 years of age and had been more or less debilitated during the pregnancy, as well as suffering from an attack of jaundice. There was, however, no sign of malnutrition in the infant except in the bones.

Acute Dilatation of the Heart During Childhood and Adolescence.—

A. D. Blackader, in the *Montreal Medical Journal* for July, 1901, says that we are not sufficiently alert for symptoms of weakened heart muscles, especially with passive dilatation. The opposite condition, hypertrophy, with its accompanying symptoms, is a clinical sign rarely overlooked. In the majority of instances acute dilatation occurs as the result of a weak heart. It is most common at two periods of life: during adolescence when the demands of the developing organism impose an increased strain upon the cardiac muscles and the heart is too often nourished by blood of an inferior quality; the second period of life in which dilatation occurs is in advancing years when degenerative processes have set in.

In the first three years of life the heart's growth is rapid and proportionate to that of the body. From the third to the tenth year it fails to maintain this relative weight, but from the eleventh to the fifteenth year its growth is extremely rapid. With this cardiac development it is easy to see how in the active life of a developing boy or girl too great a strain may be imposed upon the cardiac muscles. Such a tendency would be augmented by an anemic or impoverished condition of the blood, due in many instances to faulty hygiene in home and school life.

Symptoms or complaints in growing children of loss of strength and energy on exertion, followed by a feeling of faintness or a feeble pulse and a desire to lie down, should always lead to a careful investigation of the state of the heart wall.

In the treatment of the severer forms of cardiac dilatation abso-

lute rest in a recumbent position is necessary, and should be associated with a diet nourishing but carefully regulated to prevent indigestion. In some instances it may be advisable to restrict the amount of liquids. Digitalis can be given in full doses, and it is found of advantage to combine it with strychnine. In cases with a distinct accentuation of the aortic sound the nitrites are indicated.

The Treatment of Puerperal Infection.—

M. Budin, at the meeting of the Paris Academy of Medicine, held July 9 (*The Lancet*, July 27, 1901), gave a description of his method of treating puerperal infection since 1892. In the normal puerperium involution of the uterus takes place quickly, so that after a few days the internal os is closed. If the uterine mucosa has been infected, the underlying muscular fibers are paralyzed and there is no difficulty in passing the finger into the uterine cavity. This abnormal permeability of the uterus is of great importance from a diagnostic point of view.

The thorough cleansing of such a uterus can only be accomplished under general anesthesia. The uterus should be curetted with the finger and the cavity thoroughly mopped with large swabs. If the treatment is undertaken early as a rule prompt results are reached, but if the infection has lasted for some days recovery is slow, as both the germs and their toxins have entered the system. In cases in which the amniotic fluid is fetid, whether following a labor at term or an abortion, a digital curetting and swabbing of the uterus should be carried out as a prophylactic measure. In the Tarnier clinic, where there are isolation beds for infected cases, thirty-three patients were admitted from the outside during the year. In four of these uterine injections after digital exploration resulted in recovery. In thirteen cases a prophylactic douching was given, and in sixteen digital curettement and swabbing. Only one death resulted, and that in a case which was admitted eight days after confinement, with severe infection. Of the patients already in the hospital, fifty-nine became infected and were sent to the isolation wards. All recovered.

The Condition of the Blood in Scarlet Fever.—

F. P. Mackie, in *The Lancet* of August 24, 1901, gives the result of his examination of the blood in twenty-five cases of scarlet fever. A moderate anemia was a constant feature. The percentage of hemoglobin was in direct ratio to the number of red cells, so that the individual corpuscular richness was nearly normal. All the cases

were accompanied by leucocytosis to a pathological degree—that is, over 10,000 per cubic centimeter. This leucocytosis was not related to the temperature, but was governed largely by the severity of the throat lesion, and to a less extent by that of the rash. In some cases the leucocytosis began about twenty-four hours after the appearance of the rash, and reached a maximum after the subsidence of the general symptoms. If septic complications are present, they govern the intensity and duration of the leucocytosis. In one fatal case in which the throat complications were very severe, the leucocytosis diminished as the disease advanced. This seems to be analogous to the blood condition in pneumonia, where an increase of leucocytes in a severe case is looked upon as a bad sign.

Pernicious Anemia in Infants.—

T. M. Rotch and Maynard Ladd, in the *Archives of Pediatrics* for September, 1901, report the case of an infant whose illness began with insidious attacks of moderate indigestion, which was accompanied by extreme pallor and great loss of strength. There was a slightly elevated temperature for months, and an absence of all possible cause for the development of a secondary anemia. There was no glandular or splenic enlargement. The blood had the typical characteristics of pernicious anemia, and there was an absence of leucocytosis. Under treatment there was a rapid improvement in the general symptoms and a change for the better in the character of the blood, until the infant in all respects appeared sound and well. This was regarded as a typical remission such as often occurs in pernicious anemia. In the treatment of the case under consideration arsenic was cautiously tried, but it was not well tolerated, and played no part in the gradual improvement which took place.

Hysterectomy in a Child of Three Years.—

J. Lorthioir, in the *Journal de Chirurgie de Belge* for August and September, 1901, describes the case of a child of three years who presented a tumor, which by being compressed from above could be extruded from the vagina, and which presented the ordinary appearances of a fibroma. A portion of the tumor was excised, and the diagnosis was apparently confirmed by a microscopic examination. Later, the malignant character of the growth was confirmed. At the time of operation the uterus was about the size of a large goose-egg. Considerable difficulty was experienced, owing to the smallness of the parts, in using the ordinary instruments employed in a hysterectomy in an adult. The tissues were very friable.

The after-treatment was without special incident. A microscopic examination of the entire growth showed that it was a small round-celled sarcoma.

FORENSIC MEDICINE.

Cyclical Epilepsy as a Defense for Murder.—

In the *Northwestern Lancet* of August 15, 1901, is an account of the Barry trial, a case of homicide occurring in North Dakota. The accused was an unmarried man, 44 years of age, uneducated but shrewd, who had accumulated a competence. On the morning of January 3, 1901, Barry drove rapidly to a neighbor's house, three-quarters of a mile from his own, accompanied by his sister. He stated to the neighbor that he had killed his hired man that morning. He drove immediately to town, a distance of four and a half miles, and sought a justice of the peace, stating that he wished to give himself up. To the question as to how the crime was committed, he said he attempted to hang him, but that his arms gave out, and he then struck him with a knife. He then crossed the street, stating that he wished to go to the telephone office. He then returned to where his team had been left with a neighbor, and put the horses in charge of a stable-boy, and returned across the street to a drug store. Not securing the telephone number that he wanted at first he gave directions for another to be called, stating that he wished to have his brother's wife go down and take care of his sister. He gave as a reason for the killing that the deceased had assaulted his sister, a circumstance that she related to him the day of the killing. Later in the day he expressed regret for the killing, and went to the bank and deposited an order for fifty dollars which he had given the deceased a couple of days before. The accused changed his clothing and washed his hands before coming to town.

At the trial it was proven that every act of Barry on the day of the killing indicated that he had full understanding and memory of what he had done. There was no evidence of any acts of insanity on his part, although it was proven that he would become suddenly angry and scold or thrash the men who worked for him, but in each case on provocation. A grandmother of the defendant lived to be 100 years of age, suffering from senile dementia the last four years of her life. Two brothers had epilepsy. An aunt who died at 74 was confused during the last six months of her life. There was no mental or nervous disease in either parent, excepting headaches in

the defendant's mother. The personal history of the defendant showed that he had a convulsion when he was fourteen years old; in youth he received a blow on the right parietal bone. As a consequence of this injury he remained in the house all winter, walking around and holding his head in a stupid fashion. He could not attend school, claiming that the noise hurt his head. It was shown that he chased his brother with an axe, and that at one time in 1883, while unloading a boat, he refused to work after dark, and quit, mumbling and muttering to himself; that he was moody and silent; that he chased a man with a cant-hook at one time without apparent provocation, threatening him; that he made an attack on his brother, accusing him of attempting to beat him out of his land, when nothing had occurred to start such a conversation; that he would sometimes start in his sleep, jumping out of bed, taking the bedclothes with him; that in November, 1900, when his brother happened to meet him, he brought up an old conversation about business matters that had long been settled. In June, 1900, there was a change in his disposition. He became irritable and faultfinding with his men. During this period he would sit in a chair with his face buried in his hands, and would suddenly jump up staring.

The defendant himself testified that he had no recollection whatever of what happened after eight o'clock on the evening before the homicide; that his sister was insane and required his constant attention, and that while caring for her he had seen the devil in the pantry and was in fear. He said he regained his reason in part two or three days after the homicide.

The experts for the defense testified to a psychical epilepsy. The opinion was expressed on behalf of the State that the defendant was sane at the time of the commission of the homicide, based upon the consistency of his acts, his appreciation and realization of the events of the day, his coherency, and the motive behind the crime. The jury found the defendant guilty.

An analysis of the testimony contained in the report lends strong support to the view of the witnesses of the State, viz., that the defendant was sane at the time of the commission of the act. There were certain things brought up in the testimony relating to his previous life, his infirmities of temper, the epileptic heredity, and the altered characteristics, that could support a theory of insanity. The main feature of psychical epilepsy is an impairment of the memory of events occurring in the attack. If the synopsis of the testimony here given is correct, it is clear that no such phenomenon existed, and in its absence it would be hazardous to make a diagnosis of

epilepsy. Even if there was recollection with some coherency of conduct, and it could be shown that the individual was a confirmed epileptic, it would raise a strong probability of irresponsibility. That full punishment should never be inflicted upon a confirmed epileptic is one of the canons of forensic psychiatry. In the evidence but one attack was shown, and that was of doubtful character; there was a raising of the head in a jerking manner and a leaning far back and rolling the eyes. It is not stated that this was accompanied by a loss of consciousness.

The description of the case as given shows a man of ungovernable temper, who always acted in a hasty manner when excited, and who had never imposed upon himself ordinary self-control. If every individual who commits a crime which is hasty and ill-advised is to be pronounced insane because it is clearly not advantageous to have the person who has killed removed, then there is an end to forensic psychiatry. In every such case as that described there must be a substratum of mental defect, but it is to be distinguished from insanity by showing that the individual is alienated—*i.e.*, is different from what he was—and judged in this sense the story as related in *The Lancet* does not show epilepsy or other insanity within the proper legal degree.

Impertinent Conduct on the Part of a Physician.—

In the *Boston Medical and Surgical Journal* of August 15, 1901, occurs an editorial under the heading "A Noteworthy Legal Ruling," which shows the conduct of a physician in a light which is anything but flattering, and which we fear is becoming quite too frequent. The necessity of physicians appearing in court has become increasingly common, and this is not to be regretted when the medical man enters upon the work in the right spirit and with a definite intention of elevating the character of medical expert testimony.

In New York State the communications made to a physician while in the care of a patient are privileged. Such is not the case in Illinois and some other States; but the tendency of modern legislation is strongly toward the view that such communications should be privileged. It is this New York rule that made a decision possible in the following case: A physician employed by a New York railway company saw a plaintiff, a boy, immediately after an accident involving the company. The physician volunteered his services and attended the boy temporarily, and later, several days after the accident, saw him again at the hospital, to which he had been taken for further treatment. The physician then drew from

the plaintiff certain facts regarding the accident, which the railway company at the trial attempted to introduce as testimony. The Appellate Division of the New York Supreme Court very properly ruled that such testimony could not be allowed, and on objection being raised by the representatives of the company, made the following important ruling:

"The surgeon while thus attending the boy to stop the flow of blood, occupied to the boy the relation of physician; and when the witness subsequently went to the hospital, after the amputation of the boy's leg, and asked him questions as to the accident, the boy was justified in treating him as a physician who had attended him. His going to the hospital, having no previous acquaintance with the boy, no interest in the case except in his professional capacity, and attempting to obtain from him declarations as to the accident, was unauthorized and impertinent.

"Declarations made by a person thus severely injured, made to a physician under such circumstances, would certainly be privileged. Except as a physician he had no business in the hospital. He did not inform the boy that he came as a representative of the defendant and for the purpose of extracting from him an admission which would tend to relieve the defendant from liability. Under such circumstances I think the boy was justified in considering the person who thus addressed him as a physician, and he answered his questions freely and frankly without considering that his answers should be used against him as admissions."

The *Journal* in commenting says that the pity of the situation is that there are physicians, many of them presumably reputable, who are willing to offer testimony gained in such a manner for partisan reasons. The ruling of the court encourages the belief that they will not permit imposition under the guise of professional services, and on the other hand is a warning against the loose and unprofessional methods of certain men who pose as unprejudiced expert witnesses.

The Mental Injury from Wilful Wrong.—

In the First Appellate Division of the Supreme Court of New York (*Journal of the American Medical Association*, Sept. 28, 1901) it was held (Williams *vs.* Underhill) that injuries resulting from fright alone could be recovered for, provided they resulted from wilful wrong-doing. It has been generally held that injuries due to fright, or mental suffering, apart from physical injury or violence, could not be recovered for if they resulted from negligence. The

decision of the Supreme Court of New York upholds this rule, but says that it is not applicable in cases of wilful tort or wrongful acts. The reason for limiting liability in actions for negligence is founded on the principle of the law governing such actions, namely, that the measure of damage shall be confined to the natural and probable consequences of the act or omission constituting the cause of action. The distinction between such a case and one founded upon a wilful tort, such as an assault, is clear. The court held, in the case under consideration, that after evidence had been admitted showing that an assault had been made, then it was error to exclude evidence of its effect upon the mental condition. It was held that the claim might have been limited to the results of the fright alone.

An Attempt to Limit the Definition of Medical Expert in a Poisoning Case.—

The Supreme Court of Oregon (*Journal of the American Medical Association*, Sept. 21, 1901) says in the case of the State *vs.* Simonis that there is some conflict among the authorities as to whether a medical witness is qualified on a trial for poisoning to give an opinion that the symptoms indicate poisoning, when his knowledge was not obtained by personal experience or observation. The books agree that before one can testify as an expert it must first be shown that he is qualified either by actual experience, or by such careful and deliberate study as enables him to form a definite opinion of his own in reference to the matter. He must have a particular and special knowledge upon the subject, and his competency, which is a question for the court, must be shown before he is permitted to testify. The mere fact of a witness being a regularly licensed, practicing physician, is not in itself sufficient to qualify him in a case in which poisoning is claimed.

It is understood that all original communications sent to this journal are for its pages exclusively, excepting in cases where articles are published in the transactions of the Societies before which they are read, or in which an abstract appears. Articles will be illustrated. Authors will be furnished a liberal number of reprints; or, if they so elect, an honorarium will be paid for original communications.

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ORIGINAL ARTICLES.

STUDY OF A TYPHOID FEVER EPIDEMIC.

BY B. K. RACHFORD, M.D., CINCINNATI, OHIO,
Professor of Pediatrics, Medical College of Ohio, and Clinical Professor of Diseases of Children in the Good Samaritan and Cincinnati Hospitals.

The purpose of this paper is to study a typhoid fever epidemic which occurred during the past summer (1901) at Wequetonsing, on Little Traverse Bay, in Lake Michigan. This epidemic is of especial interest, not only because of its purely local character, being confined to the guests of one hotel and the cottagers who took their meals at this hotel, but also because the conditions for studying its etiology were more favorable than those of any other epidemic that has come within my knowledge. Moreover, a careful study of this epidemic will be of interest to physicians in a dozen large cities, who annually send many thousand people to spend the hot months of summer at the great summer resorts of Northern Michigan, of which the shores of Little Traverse Bay are a great center.

This body of water is one of the most beautiful in all the region of the Great Lakes. Harbor Point, which is one of the most picturesque spots on its shores, juts out into the bay to make a magnificent land-locked harbor capable of receiving the largest vessels that sail the lakes. Extending around this harbor for about three miles, Wequetonsing, Harbor Springs, and Harbor Point make an almost continuous summer settlement. The width of the harbor between Wequetonsing and Harbor Point is about one and a half miles at the widest point.

WATER-SUPPLY.

These three places have one water-supply in common; this is derived from the water-works of the village of Harbor Springs, which lies between the two summer resorts. The supply of water for this system is derived from artesian wells, similar to those which will be subsequently described as abounding throughout Wequetonsing. The water from these wells is delivered into a lower reservoir, and subsequently pumped into a higher one, giving sufficient pressure to carry the water through the mains which extend around the harbor, not only to the village of Harbor Springs, but also to many of the houses in Harbor Point and Wequetonsing. The water as it

pours from these artesian wells is undoubtedly as pure and wholesome as any summer resort can boast of. And if this were the only water finding its way into these reservoirs it would seem to be an ideal water-supply. It appears, however, that at long intervals, when the demand for water is very great, as in case of fire, it is necessary to supplement the artesian water, which is constantly pouring into the reservoirs, by lake water, which is pumped from the harbor. Water coming from this source will undoubtedly be contaminated by organic impurities, and possibly with sewage. Once during July, 1901, on the occasion of a large fire at Harbor Springs, the lake water was used to supplement the artesian water in the reservoirs. I mention these facts not because they have any bearing upon the typhoid fever epidemic which occurred at Wequetonsing, for they have not, since Harbor Point, which is supplied exclusively from this water-supply, has never had a case of typhoid fever develop there, but because it seems desirable that this one possible chance of contaminating an otherwise perfect water-supply should, if possible, be removed, and the summer and other residents there be given assurance that the lake water shall not in the future be pumped into a reservoir which supplies the distributing system above described.

While Harbor Point, which has always been free from typhoid, is supplied exclusively with this water, Wequetonsing, which produced a decided sensation throughout Northern Michigan with her typhoid epidemic the past summer, is not dependent upon this water-supply, but has everywhere distributed throughout the settlement a large number of flowing artesian wells, which furnish the drinking-water for the summer residents there. The water which pours from these artesian wells is absolutely pure and wholesome, and can never be contaminated by surface water, however thickly the surrounding country may be inhabited. Back of Wequetonsing is a range of high cliffs, and over these cliffs from the high lands beyond four layers of hard clay hang like so many blankets, descending to the lower ground and running into the lake. These strata of clay, as they pass beneath Wequetonsing, are separated by layers of sand, and these sand layers carry the streams of water, which are reached by boring from 50 to 165 feet. The depth of the well depends upon the number of strata of clay penetrated before striking water. In some parts of Wequetonsing a good flow of water is obtained under the first layer of clay. In other portions a satisfactory flow is not obtained until the third layer has been penetrated.

When this water is reached by driven wells the force is sufficient to carry the water several feet above the surface, producing a well which flows continuously. Wequetonsing, as I have said, is abun-

dantly supplied with water from these wells, and the water-supply is therefore absolutely safe and free from all possible contamination. The following is an analysis of water taken from the flowing well supplying the drinking-water at Colonial Hall,[1] which was the scene of the typhoid fever epidemic under discussion:

	Parts per million.
Total solids	193.
Loss on ignition	60.
Total fixed solids	133.
Nitrogen as free ammonia	.005
Albumenoid ammonia	.022
Nitrites	0.000
Nitrates	2.400
Chlorine	4.000
Oxygen consumed	1.10

This analysis was made by Prof. Edw. Keyser, Washington University, St. Louis, Mo., who was present at Wequetonsing during the epidemic and assisted in studying its etiology.

The following analysis was made by Dickman and Mackenzie, analytical chemists of Chicago, Ill., of water obtained from Dr. Breed's well, situated about 125 yards from the Colonial Hall:

	Grains per gallon.
Sodium chloride	0.76
Calcium sulphate	0.60
Sodium carbonate	2.80
Calcium carbonate	5.62
Magnesium carbonate	3.28
Silica	0.17
Iron oxide	0.17
Total	13.40
Nitrites	None.
Nitrates	"
Free ammonia	"
Albumenoid ammonia	"

These same chemists also furnished the following analysis of a specimen of water from the Harbor Springs water-works above described, taken from a tap in Wequetonsing on October 18, 1900:

	Grains per gallon.
Sodium chloride	0.96
Calcium sulphate	0.49
Sodium carbonate	2.60
Calcium carbonate	5 94
Magnesium carbonate	3.28
Silica	.37
Iron oxide and alumina	.20
Organic matter	2.71
Total	16.55

[1] This hotel must not be confused with the "Wequetonsing Hotel," which is located half a mile away and far removed from the local typhoid epidemic under discussion.

It will be noted that this water is contaminated with organic matter, which must have reached it after it was poured from the flowing wells into the reservoir.

In addition to this we have a report from John W. Alvord, sanitary engineer, who was called from Chicago as an expert during this typhoid fever epidemic to look into its etiology and suggest the remedies to prevent a recurrence during subsequent seasons. The following is an extract from his report: I inoculated sterilized nutrient gelatin, for quantitative tests, from four samples of water from your (Mrs. Eaton's) flowing artesian well, two samples from city tap, and one sample from Dr. Breed's flowing well. The resulting colonization from seventy-two hours' growth, in room temperature, in properly sterilized Petri dishes, was as follows:

Colonial Hall (Eaton Hotel) Artesian Well.

Sample No. 1, bacteria per Cc..... 9
" " 2, " " 14
" " 3, " " 18
" " 4, " " 21

City Water Kitchen Tap.

Sample No. 5, bacteria per Cc..... 38
" " 6, " " 26

From Dr. Breed's Artesian Well.

Sample No. 8, bacteria per Cc..... 11

As Mr. Alvord says, his examination is not satisfactory from a bacteriological standpoint, in that it does not demonstrate either the absence of the typhoid or the colon bacillus. It is, however, of some value in that it renders it highly improbable that water containing as few bacteria as 20 to 30 to the Cc. could be contaminated with sewage.

None of these examinations, however, is necessary to prove that artesian water is safe and wholesome, provided it does not contain injurious chemical ingredients, and this is proven by the chemical analyses already given. In conclusion, therefore, we may say that the water supplied by the flowing wells at Wequetonsing not only cannot be contaminated by surface water, but is absolutely above suspicion as a wholesome drinking-water.

With these preliminary remarks as to the water-supply of Harbor Point, Harbor Springs, and Wequetonsing, we are better prepared to study the typhoid fever epidemic in question.

This epidemic occurred between July 24, the date of the onset of the first case, and August 27, the date of the onset of the last case, and comprised in all about thirty-five cases.

I have been able to collect from the physicians in attendance more or less accurate data of twenty-eight cases, which are presented, in the order of their development, in the following table:

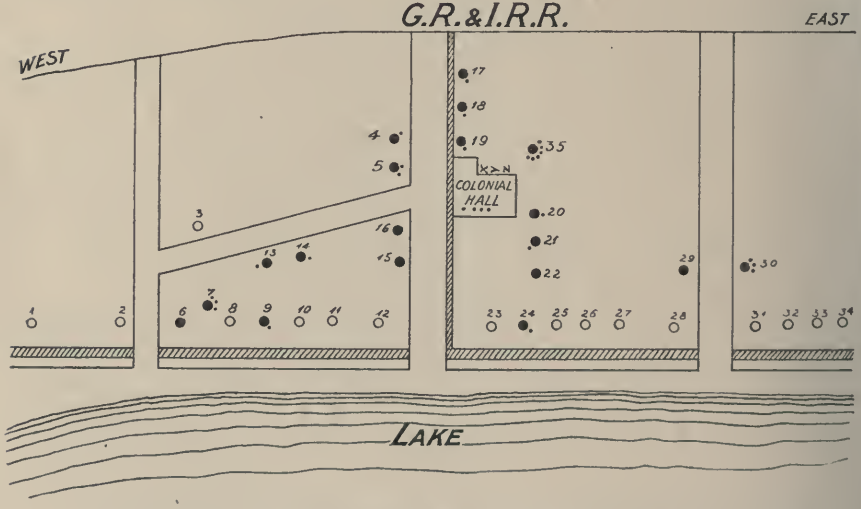
NAME.	AGE.	Arrival at Wequetonsing.	Location in Wequetonsing.	Onset of illness.	REMARKS.
Miss A.....	16	June 30	Cottage 7	July 24	Continuous fever from July 24 to Aug. 28. Treated in cottage No. 7, by Dr. W. C. Glasgow, of St. Louis.
Mr. B.....	18	July 9	Colonial	July 27	Severe case, ill seven weeks, treated in hotel by Dr. M. E. Breed, of Pittsburg.
Mr. C.....	18	July 10	Cottage 4	July 28	The most severe case, critically ill for weeks, treated in cottage No. 4 by Dr. M. E. Breed and the writer in consultation.
Miss D.....	23	June 30	Cottage 35	July 30	A servant at Colonial Hall, sent home by Dr. M. E. Breed.
Miss E.....	27	July 3	Cottage 5	July 31	Was taken home by her physician.
Miss F.....	20	July 10	Cottage 30	Aug. 1	Was sent to Chicago by the writer Aug. 2, where the diagnosis of typhoid was confirmed.
Miss G.....	38	June 30	Cottage 35	Aug. 1	A servant at Colonial Hall, sent home by Dr. M. E. Breed.
Mr. H.....	17	July 7	Cottage 18	Aug. 1	Treated in cottage 18 by Dr. T. F. Prewitt, of St. Louis; a severe case seen by the writer in consultation.
Mr. I.....	25	July 24	Cottage 14	Aug. 4	Treated in cottage 14 by Dr. W. C. Glasgow; fever lasted five weeks.
Miss J.....	23	Juue 30	Cottage 35	Aug. 4	Servant at Colonial Hall, sent home by Dr. M. E. Breed.
Miss K.....	17	Juue 30	Cottage 35	Aug. 6	Servant at Colonial Hall, sent home by Dr. M. E. Breed.
Miss L.....	14	July 16	Cottage 19	Aug. 6	Sent to Cincinnati Aug. 7 by the writer, where she was treated by Dr. E. Schwab.
Miss M.....	28	July 14	Cottage 7	Aug. 7	A trained nurse who was taken ill while nursing Miss A. Treated in cottage 7 by Dr. W. C. Glasgow.
Miss N.....	22	June 30	Cottage 35	Aug. 7	Servant at Colonial Hall, sent home by Dr. M. E. Breed.
Mr. O.....	24	July 20	Cottage 20	Aug. 9	He left for home on Aug. 9 because he was ill. He developed typhoid.
Miss P.....	19	June 30	Cottage 35	Aug. 10	Servant at Colonial Hall, sent home by Dr. M. E. Breed.
Miss Q.....	22	July 10	Cottage 9	Aug. 11	A trained nurse on vacation—went home and developed typhoid.
Mr. R.....	18	July 3	Cottage 5	Aug. 11	Went home and immediately developed typhoid.
Mr. S.....	17	June 30	Cottage 13	Aug. 12	A very mild case; had had typhoid before; seen by Dr. W. O. Hardaway, of St. Louis, and treated in cottage 13.
Mr. T.....	30	July 12	Cottage 30	Aug. 13	Went home and immediately developed typhoid.
Miss U.....	20	July 15	Colonial	Aug. 15	This young lady was taken sick after leaving Wequetonsing; exact dates are not known.
Miss V.....	22	June 28	Colonial	Aug. 16	Sent to Cincinnati, O., by the writer on Aug. 23, and was there treated by Dr. R. W. Stewart.
Miss W.....	26	June 21	Cottage 21	Aug. 17	Seen by the writer; treated in cottage 21, because other complications prevented her being sent home.
Miss X.....	10	June 23	Cottage 24	Aug. 18	Treated in cottage 24 by Dr. M. E. Breed—a mild case.
Master T..	5	July 4	Cottage 30	Aug. 19	A son of Mr. T., who was sent home on the 13th. Sent to Chicago Aug. 22 by the writer.
Mr. Y.....	43	July 30	Cottage 7	Aug. 19	Went home because he felt ill, and there developed typhoid. Exact date not known.
Miss Z.....	18	July 18	Colonial	Aug. 19	Became ill after returning to Chicago. Exact date not known.
Mr. A. Z...	17	July 25	Cottage 17	Aug. 27	Sent to the hospital in Grand Rapids by the writer on Sept. 4.

LOCATION OF EPIDEMIC.

This epidemic of typhoid fever was confined to the guests of Colonial Hall and the cottages who took their meals at this hotel.

Colonial Hall, which is owned and managed by Mrs. C. H. Eaton, is located in the far western portion of the Wequetonsing settlement, and is fully seven squares from the west line of the Wequetonsing Association proper. The Wequetonsing settlement extends for more than a mile along the bay, and is made up of Wequetonsing proper, East and West Wequetonsing, and the adjoining portion of Harbor Springs, where the West Wequetonsing overflow has passed within the corporation lines of this village. This extreme western portion of the settlement within the corporation lines of the village of Harbor Springs was the site of the epidemic. This is the newest and most sparsely populated portion of the Wequetonsing settlement.

The following diagram will show how remarkably circumscribed was this epidemic:



In this diagram Colonial Hall is shown surrounded by cottages, which for convenience are designated by numerals. The shaded circles indicate the cottages the inmates of which took their meals at Colonial Hall. The dots adjoining the shaded circles and those in Colonial Hall indicate the number and location of the typhoid cases.

It will be noted on this diagram that not only Colonial Hall but thirteen out of the eighteen cottages connected with this hotel had

typhoid fever patients, and that only five of these eighteen cottages escaped typhoid. Of these five cottages, No. 6 was not occupied until after the cause of the epidemic was discovered and removed. Another one of the cottages, No. 29, was occupied by a prominent physician, his wife, and child. Both the doctor and his wife are past the age of greatest susceptibility to typhoid, and their son had had a very severe case of typhoid only a few years before, and was therefore probably immune. Moreover, this physician took unusual precautions with himself and family to avoid contracting the disease, avoiding all uncooked fruit and vegetables and exercising especial care as to the drinking-water. (The importance of these matters will be seen later in the discussion of the etiology of this epidemic). Concerning one other of the cottages that escaped, there seems to be a question as to whether an inmate of this particular cottage did not develop typhoid after her return home.

From this it would appear that only two of the exposed cottages containing susceptible individuals escaped infection. It has further been estimated that one person in every five taking meals at Colonial Hall between July 20 and August 7 developed typhoid fever. These facts show the remarkable virulence of the poison, in that such a large percentage of the exposed contracted the disease.

Six of the cases occurred in cottage 35. This was the cottage occupied by the female servants of the hotel. They were nearly all young women of susceptible age, between eighteen and twenty-five. All of these cases were sent home.

Four cases developed in the hotel, but only one of these remained to be treated there. The remaining cases were rather evenly distributed among the cottages connected with Colonial Hall.

The remarkably local character of this epidemic is further shown by the fact that all of the cottages in the infected district whose residents did not take their meals at Colonial Hall escaped infection. Cottages 8, 10, 11, 12, 23, 25, 26, 27, 28, and 31 were in the infected district filled with summer residents, all of whom escaped typhoid because they took their meals in their own cottages.

ETIOLOGY OF THE EPIDEMIC.

During the last days of July I became aware of the fact that there were a number of cases of fever of some description being treated in and near Colonial Hall. I had no definite knowledge that these cases were typhoid, yet the suspicion was abroad that this was the case. When, therefore, on the afternoon of August 1 I was called to see Miss E——, who had been sick for two days with fever, I was prepared to suspect typhoid.

A continued fever (not malarial), with diarrhea and gurgling in the right iliac region, led to the provisional diagnosis of typhoid, and I advised that she be sent home as soon as possible. She left for Chicago the next morning, August 2, where the diagnosis of typhoid was confirmed, and word reached me to that effect on the morning of August 6. This was the first positive information to confirm my suspicion that an epidemic of typhoid fever existed in West Wequetonsing.

On the same afternoon, August 6, I was asked to see Miss M——, in cottage 19, and found her also with characteristic symptoms of typhoid. She was sent to Cincinnati the next day, and was there treated by Dr. E. Schwab.

By this time I had learned from the physicians in charge that there were a number of typhoid fever cases being treated in and around Colonial Hall. Acting on this information, I sounded the alarm, and advised my patients and personal friends to leave Colonial Hall at once.

The next morning, August 7, I called a meeting of the interested physicians to study the situation and to determine if possible the cause of the epidemic. The following physicians were present: T. F. Prewitt, W. O. Hardaway, W. E. Glasgow, M. E. Breed, and the writer. Besides these there was also present by special invitation Mr. Edw. Keyser, a chemist connected with Washington University, St. Louis.

This meeting declared that there was a local typhoid epidemic in West Wequetonsing, apparently confined to the guests and cottage boarders of Colonial Hall. Committees were appointed to obtain such information as was necessary to study, from various standpoints, the causes of this epidemic. It was agreed that the epidemic had not had its origin in any general contamination of the water-supply of the resort. The reasons for this opinion have already been given in this paper. It was also decided that bathing in the bay had had nothing to do with the epidemic, since it was circumscribed, and the bathing was general throughout the resort.

It was also agreed that flies had nothing to do with spreading the epidemic, since at this time, when there were fourteen cases under treatment, the flies had not appeared at Wequetonsing, and I may add that they did not commence to appear until a week later. It was also evident that flies had nothing to do with the spread of the epidemic for other reasons, namely, that there was only one outside closet in all the infected district, and this closet was quite as near to many of the cottages that escaped infection as to those that were

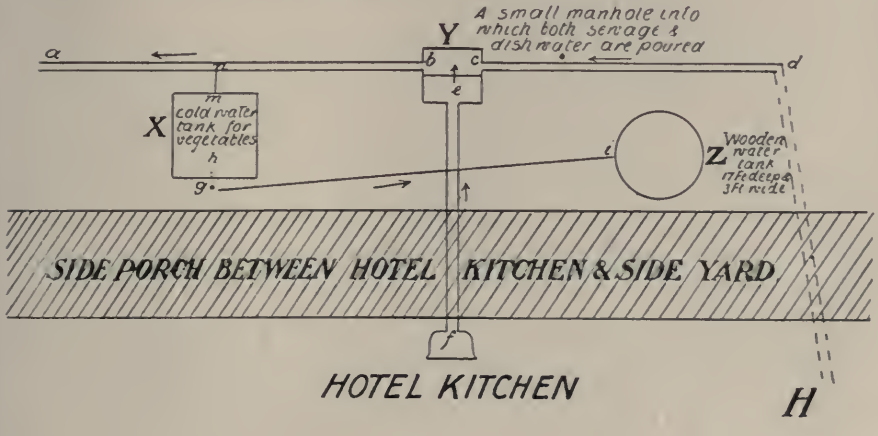
infected. It did not, therefore, seem possible that the epidemic could be spread by flies, or any other insect, since these insects would not show such partiality for the cottages connected with the hotel as to infect almost all of them, and to allow all of the other cottages in the neighborhood not connected with the hotel to escape.

The question of the milk-supply was also considered at this meeting, and immediately after its adjournment we learned that there had been no illness of any kind at or near the dairy which supplied milk to this hotel. We felt, therefore, reasonably sure that the milk had not been the means of carrying the epidemic. It was further noted at this meeting that there had been no disease produced by the milk in any other portion of the resort, although there were more than a thousand people taking raw milk daily.

Directly after the meeting adjourned, its members, as a committee of the whole, visited Colonial Hall to inspect the premises. We were there met by Mrs. C. H. Eaton, a most worthy woman, the manager of the hotel, who assisted us in every possible way in our investigations. She was most anxious to find and remedy the cause of the epidemic, which every one by this time felt was located at her hotel.

Our investigations were almost at once crowned with success, since we one and all agreed in a very short time that the whole cause of the trouble lay in a gross defect in the outside plumbing of this hotel, which led to a sewage contamination of the hotel water-supply.

In describing the conditions as we found them, it will be necessary to introduce the following chart:



The above chart shows the arrangement of the sewer and water-supply of the hotel. The positions X, Y, and Z on this chart are also noted on the chart of the grounds previously given. The hotel kitchen is shown with a side porch about six feet wide leading to the side yard. From the hotel closets (H) an iron pipe carries the sewage into a tile sewer (*d*, *a*) in the side yard. All of the sewage from the hotel passed through this sewer some distance beyond *a*, and emptied at right angles into a street sewer, which carried it 150 feet into the bay. At Y this sewer is interrupted by a small manhole, which is divided half-way up by a partition into two compartments; one of these (*b*, *c*) received the sewage from the hotel, and the other (*e*) was a grease trap which received the dish-water, etc., from the sink (*f*) in the hotel kitchen. From thence both sewage and dish-water ran through the pipe (*b*, *a*) into the street sewer. This manhole (Y) was only six feet deep, and walled with brick, but not cemented. The surrounding soil was sandy. About seven feet away was a flowing artesian well (*g*), which poured its water into a large shallow wooden tank (X). This tank, which was constantly filled with cold water from the flowing well, was used for cooling and preserving vegetables and fruits, which were carried thence directly to the dining-room. This vegetable tank had a waste pipe (*m*, *n*) which connected it with the sewer. Water was also carried from the artesian well through a pipe (*g*, *i*) to a large wooden tank, seventeen feet deep and three feet wide. The water from this tank (Z) was pumped into a galvanized iron reservoir directly above, and from this reservoir the water was piped to the kitchen and other parts of the hotel. The wooden water tank (Z) was distant from the manhole (Y) only six feet. When this arrangement was found it was evident to all of us, from the foul condition of the manhole (Y), containing as it did the hotel sewage, that the two water tanks (Z and X) would necessarily be contaminated by this sewage; thus on the one side contaminating all the uncooked fruit and vegetables used in the hotel, and on the other the general water-supply of the house. We decided, therefore, to act upon these conclusions and to make our recommendations accordingly. Subsequently, when Mr. John W. Alvord, the sanitary expert from Chicago, arrived on August 29 or 30, he agreed that this had been the prime cause of the trouble, although, as we shall see later on, the typhoid epidemic had by this time come under control. The remedies necessary for controlling the epidemic had been applied on August 8, immediately after our investigation.

Mr. Alvord's investigations, however, were so valuable in demon-

strating that sewage contamination of the tank (Z) above referred to did actually occur, that I quote a portion of his report verbatim: "In order to demonstrate still further the fact of this contamination, the wooden tank (Z) was pumped out nearly dry, so that the level of its water was four feet below the level of the adjacent sewer (Y). Careful measurement was then taken at the beginning, middle, and end of four hours, and the infiltration determined to be at the rate of nine gallons within twenty-four hours, a sufficient amount to explain all the difficulties and disaster which have occurred at Colonial Hall this summer."

After our investigation on August 7, Mrs. Eaton stopped using the water which was distributed to her hotel through the system of tanks just described, using instead the water coming directly from the flowing well, and that from the Harbor Springs water-works, which has previously been described. This, with the disinfection by sulphuric acid of the manhole in the sewer and replacing the wooden tank (Z) with one of galvanized iron, were the remedies that could be immediately applied to control the epidemic. It was our belief that the contaminated water supplied through the tank system to her hotel was the sole cause of the epidemic, and that if the use of this water was discontinued the epidemic would speedily be brought under control; and subsequent events demonstrated the correctness of this opinion.

On August 8 the recommendations made by the committee of physicians for controlling the epidemic went into effect. Fourteen cases of typhoid fever developed within sixteen days prior to this date, and thirteen more cases within the next twelve days. During all of this time, from the beginning of the epidemic until about August 25, the hotel was filled with guests, the number ranging from one hundred and fifty to one hundred and seventy-five. After August 12, however, twelve days after the water-supply of the hotel had been changed, only one case of typhoid occurred, and that was seen by the author on August 27, and was shortly afterward sent to Grand Rapids for treatment. This last case occurred within nineteen days after the water-supply of the hotel had been changed, and from this time until September 15, when the author left for home, not another case had occurred, although the hotel was still open and entertaining twenty-five or thirty guests.

The above facts clearly demonstrate not only that the local water-supply of the hotel, which was contaminated by sewage, was the cause of the epidemic, but it also demonstrates that the

remedies recommended by the committee of physicians on August 7 brought the epidemic at once to an abrupt close, since all of the subsequent cases occurred within the next twelve days, except one, which occurred on the nineteenth day, and this is no doubt an example of late incubation.

There are certain other facts connected with the etiology and continuance of this epidemic which are of interest. The author of this paper having spent a number of summers at Wequetonsing, had observed that diarrhea was very prevalent among the guests at Colonial Hall during August and September, 1900. At that time he believed that the trouble was due to the prevalence of surface closets in this portion of Wequetonsing, since this was the only part of the settlement where the outside closets existed, and the only part having an epidemic of diarrhea. Believing as he did, the writer suggested to Mrs. Eaton last year that at the close of the season all of her cottages should be supplied with flush closets connected with the sewer, and that the outside or surface closets be closed during the next season. This advice was followed, so that at the beginning of the present season there was only one outside closet in this portion of the settlement, and this had nothing to do with the present epidemic. My belief now, in the light of subsequent events, is that the diarrhea which was prevalent during August and September, 1900, was produced by the sewage contamination of the water-supply which was demonstrated to exist this season. It is even more important, in the study of the etiology of this epidemic, to lay special stress upon the fact that one of Mrs. Eaton's sons had typhoid fever during August of 1900, and was treated in Colonial Hall. It is more than probable that the present epidemic had its origin in this case. After the epidemic of this year was under headway, it is not improbable that the case of Mr. B——, who was taken sick on July 27 and treated in the hotel through a severe typhoid, had something to do with spreading the epidemic, since he was the only case treated in the hotel, and therefore the only one that could have directly contaminated the sewer and the water-supply above described.

It is also worthy of note that the earlier cases in this epidemic were for the most part mild, many of them being treated for ten days under the belief that they were so mild as not to require close attention and careful nursing, which typhoid ordinarily requires. Some of these cases suffered a relapse and developed most dangerous typhoid symptoms. Some of the later cases, however, were severe from the onset. It is a matter of congratulation to all concerned

that there was not a single fatality, so far as is known, among the cases occurring in this epidemic.

PERIOD OF INCUBATION.

Nine days was the shortest and nineteen days the longest period of incubation in any of these cases. And judging by the abrupt manner in which the epidemic was brought to a close within twelve days after the water-supply of the hotel had been changed, the great majority of the cases had an incubation period of less than twelve days.

CONCLUSIONS.

From the facts presented in this paper it is evident that the typhoid fever epidemic which occurred at Colonial Hall in West Wequetonsing during July and August, 1901, was produced by purely local causes, which contaminated the local and private water-supply of this hotel, and were not in any manner dependent upon general conditions which could cause the spread of the disease to other portions of the resort. It is further made evident in this paper that the general water-supply of Wequetonsing is such that it cannot be contaminated by surface water, and can, therefore, never be the means of carrying typhoid contagion.

It is also the belief of the physicians who interested themselves in this epidemic that Colonial Hall itself, with the changes in the plumbing which have been made under the direction of a careful sanitary engineer, will in the future be entirely safe and free from typhoid contagion.

DEGENERACY AND POLITICAL ASSASSINATION.

BY EUGENE S. TALBOT, M.D., D.D.S.,
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In dealing with political assassination as with other phases of sociology, racial and national tests alone are applicable. On the continent of Europe assassination has always played a part in politics. Even during the nineteenth century the axiom of Dumas[1] that in politics "we do not kill a man, we remove an obstacle," was acted on by royalist, imperialist, nihilist, and churchman alike. The English, as Macaulay[2] points out, regard "assassination, and have during some ages regarded it, with a loathing peculiar to themselves. So English, indeed, is this sentiment that it cannot even now be called Irish, and that till a recent period it was not Scotch. In Ireland to this day the villain who shoots at his enemy from behind a hedge is too often protected from justice by public sympathy.

"In Scotland plans of assassination were often during the sixteenth and seventeenth centuries successfully executed though known to great numbers of persons. The murders of Beaton, of Rizzio, of Darnley, of Murray, of Sharpe, are conspicuous instances. The royalists who murdered Lisle in Switzerland and Ascham at Madrid were Irishmen; the royalists who murdered Dorislaus at the Hague were Scotchmen. In England, as soon as such a design ceases to be a secret hidden in the recesses of one gloomy, cankered heart, the risk of detection and failure becomes extreme. Felton and Bellingham reposed trust in no human being, and they were therefore able to accomplish their evil purposes. But Babington's conspiracy against Elizabeth, Fawkes's conspiracy against James, Gerard's conspiracy against Cromwell, the Rye house conspiracy, Despard's conspiracy, the Cato Street conspiracy, were all discovered, frustrated, and punished. In truth such a conspiracy is, in England, exposed to equal danger from the good and from the bad qualities of the conspirators. Scarcely any Englishman, not utterly destitute of conscience and honor, will engage in a plot for slaying an unsuspecting fellow creature, and a wretch who has neither conscience nor honor is likely to think much on the danger which he incurs by being true to his associates and on the rewards which he may obtain by betraying them. There are, it is true, persons in

[1] Count of Monte Cristo.
[2] History of England, vol. v, p. 120.

whom religious or political fanaticism has destroyed all moral sensibility on one particular point, and yet has left that sensibility generally unimpaired. Such a person was Digby. He had no scruple about blowing King, Lords, and Commons into the air, yet to his accomplices he was religiously and chivalrously faithful; nor could even the fear of the rack extort from him one word to their prejudice. This union of depravity and heroism is rare. The majority of men are either not vicious enough or not virtuous enough to be loyal and devoted members of a treacherous and cruel confederacy, and if a single member should want either the necessary vice or the necessary virtue, the whole are in danger. To bring together in one body forty Englishmen all hardened cutthroats and yet all so upright and generous that neither the hope of opulence nor the dread of the gallows can tempt any one of them to be false to the rest, has hitherto been found, and will, it is to be hoped, always be found, impossible."

Another Gerard conspiracy in addition to that referred to by Macaulay was directed against William the Silent. Gerard (Fig. 1), born in 1558, killed William the Silent July 10, 1584, and was executed July 14. In the conspiracy were Dutch, English, French, Italian, and Spanish ultramontanes. The deed was favored by the Jesuit faction and met with approval by high ecclesiastic dignitaries. Gerard was almost canonized by the Spanish monarchists. For some years he had displayed egotistic evidences of paranoia, and had labored at the conspiracy for six years. Through paranoiac anesthesia he endured torture so courageously that Dutch, English, French, and German protestants believed that the devil aided him. He had a kephalonic scaphocephalic cranium. The eyes were small, sunken, and unequally placed; the bones of the face and nose were arrested in development, as also was the upper jaw.

FIG. 1—Gerard.

This prejudice against assassination as a political weapon, while common in the Northern United States, is not found in the Southern. The attack on Sumner by Brooks in the halls of Congress, although of the nature of political assassination, met with approval in the South. The recent assassination of Goebel by Kentucky republicans does not seem to have aroused special horror in the South. The feeling among the opposing party in Kentucky is vengeance rather than loathing.

While factors of this kind discount the value of assassination as an absolute test of mental disorder or degeneracy, still it cannot be controverted that most assassins are abnormal. The reason for this has been pointed out by Macaulay in his discussion of the case of Grandval, who was "undoubtedly brave and full of zeal for his country and Roman Catholicism. He was, indeed, flighty and half-witted, but not on that account the less dangerous. Indeed, a flighty and half-witted man is the very instrument generally preferred by cunning politicians when very hazardous work is to be done." Mock deference, as J. G. Kiernan[1] has pointed out, renders this class of beings the unflinching slaves of party leaders. It is not surprising, therefore, that stigmata of degeneracy are, as I pointed out seven years ago,[2] as frequent among political assassins, who represent the proletariat, bourgeois, and aristocracy, as among royalty.

Assassination in Italy, France, Holland, and Germany during the fourteenth, fifteenth, sixteenth, seventeenth, and eighteenth centuries was a trade carried on for hire. Even in the nineteenth century the Italian bravo and the French paid assassin were not unknown.

In Poland before the extinction of the republic (under monarchic forms) revolutions and assassinations were necessary incidents of government. To this day they are parts of Polish protests against Russian rule. Even as late as 1867 the Pole Berezowski attempted to assassinate Alexander II. at the Paris exposition. These deeds are eulogized in the histories taught in Polish Catholic schools anent Poland.

In Ireland, the prejudice against assassinations for Irish political reasons is non-existent in the south. The *Irish World*, which rabidly denounced the assassination of McKinley, defended the Phœnix Park assassinations committed on innocent persons in order to break off negotiations between Parnell and Gladstone to benefit Irish-American and Irish politicians profiting by funds raised in America for revolutionary purposes. This last procedure has been much employed in Europe and Ireland for the purpose of leading the government to measures so extreme as to force moderate men into revolution. A useless, blatant adherent is often killed by his own party to cast blame on the opposite party. This style of assassination has been so frequently employed in Irish politics that it forms the motif of Carleton's romance, "Crohore of the Billhook."

[1] *Journal of Mental Science*, 1887, p. 193.
[2] *Journal of the American Medical Association*, Nov. 10, 1894.

Assassination may be part of a religious cult. This was the case with the thugs, who were devotees of Bowanee, the destructive female principal of the Hindoo Pantheon.

Acting on Italian principles of government (summarized by Machiavelli[1]) Catherine de Medici converted assassination as she did prostitution into efficient government agencies. Her policy resembled that of Alexander VI. and other Borgias. This Italian policy was adopted against Queen Elizabeth by the ultramontanes. It was also employed by one of the meanest of the mean Stuarts, James I. of England.

While Catherine de Medici employed indifferently any method of assassination which suited her purpose, she was as much of a past master of toxicology as the Borgias. In Italy, indeed, poisoning was so popular as to bear the name of a saint. So late as 1719 poison was sold in Italy under the title of "Manna of St. Nicholas of Barri." St. Nicholas was adopted as a patron saint by criminals. Thieves were popularly known as St. Nicholas's clerks.

The derivation of the word assassin indicates the part drugs played in producing assassins. The "old man of the mountain" administered hashish to his dupes, who were thereby transported to an imaginary paradise filled with houris. To secure this paradise they were ready to obey any errand of the old man of the mountain, and were employed to remove his enemies. Corruption of the term hashish produced the word assassin.

Assassination by a Continental European, by an Irishman, or by a Southerner does not present to the Continental European, the Southerner, or the Irishman the horrid aspect it does to an Englishman or to an American of the Northern United States. Assassination in any of these peoples does not imply necessarily the depth of moral turpitude it does in an Englishman or an American from the Northern United States. Assassination, not necessarily antisocial in character, has been often held noticeably the reverse, as in the cases of Brutus and Tell; hence it is perfectly consonant with even high ethical ideals in other respects.

The policy of Catherine de Medici necessarily created assassination tendencies in parties. The massacre of St. Bartholomew had been preceded by Huguenot attempts at assassinating the Duke of Guise. The mental atmosphere created by the massacre of St. Bartholomew predisposed both Catholics and Reformers to remedy fancied evils by assassination.

Many of the assassins employed were soldiers of fortune, familiar

[1] The Prince.

features of the time, and hence not out of accord with their environment. The two assassins of this period who had the most effect on history were both degenerates. Jacques Clement (Fig. 2), a Jacobin monk, born in the Diocese of Sens, France, in 1567, assassinated Henry III. (the best liked son of Catherine de Medici) August 1, 1589. Clement was an ignorant, excessively bigoted, libertine monk. The mere utterance of the term heretic flung him into fury closely resembling transitory frenzy. He had hallucinations, which judged by the standards of his time were insane. One cited by Regis[1] is as follows: "One night, Jacques Clement being in bed, God sent him an angel, who appeared with a great light showing him a naked sword with these words: 'Brother Jacques, I am a messenger from Almighty God, who comes to announce to thee that by thee the tyrant of France is to be slain; think, therefore, of the martyr's crown prepared for thee.' Thus saying the angel disappeared." Clement had a full, low forehead, the eyes were set far apart, the brow was excessively developed, there was a long, slender nose, the lower jaw was arrested in development.

FIG. 2.—Clement.

Clement's act brought Henry IV. of the Bourbon line to the throne. Henry IV. by entering the Catholic church pacified France and secured for the Huguenots political equality. He was still, however, viewed with horror by the ultramontane party, whose hatred swayed the insane Ravaillac (Fig. 3). He had been a domestic, clerk, schoolmaster, and had received deacon's orders. He had passed the period of adolescence by eight years when he committed the assassination. He was of rather tall stature, powerful and large of limb, cross-eyed, with dark, reddish hair, and was a victim of persecutory delusions and tormented with visual and auditory hallucinations. He entered a Feuillans monastery, but was forced to leave on account of his mental disturbance. He was

FIG. 3.—Ravaillac.

[1] Les Regicides.

altogether unstable. The word "Huguenot" turned his madness into fury. His mind was distracted, bigoted, and susceptible to every morbid religious impression. After he returned from the convent, he was in prison a year for homicide, where he had visions. He had a long, narrow head, with a long, slender nose. The face was asymmetric. There was arrest of development of the bones of the face and upper jaw. The lower jaw was normal. There is no doubt of his mental unsoundness, yet his conduct exhibits vacillation alleged to be inconsistent with insane delusion. Ravaillac's visions and extravagance were the cause of his being expelled from the cloister. At this time, fanatics taught it was lawful to kill those who threatened the Catholic religion. Ravaillac greedily swallowed these principles. He resolved to assassinate Henry IV., whom his overwrought imagination presented in the light of one favorable to heresy. Six months before his crime he set out from Angoulême in order to speak to the king and kill him if he could not convert him to ultramontane views. He did not succeed in obtaining audience, but for some time he was much less disturbed. His visions, however, soon returned and disturbed him. He stole a knife from a Paris tavern and set out on his return home once more. Near Étampes he broke off the point in a repentant mood, but sharpened it again. He came back to Paris, and dogged the king for several days. At last more determined than ever he slew him May 14, 1610. Ravaillac after being racked was torn to pieces by four horses. He displayed the insensibility to pain common in degenerates.

Clement and Ravaillac effected marked changes in French history which to some extent nullified each other, since the benefits gained by the doctrine of political equality of religions voiced in the Edict of Nantes were nullified by its revocation under Louis XIV., the descendant of Henry IV.

Damien, a paranoiac degenerate who attempted to assassinate Louis XV., had an asymmetric face and his skull was Neanderthaloid in type. The dictum of Macaulay as to the use of flighty and half-witted men by politicians is singularly well illustrated in these three cases. In all the influence of current discontent on the delusions of the insane likewise appears.

The influence of the dislike of the English to assassination is singularly well shown in the fact that attempts made to assassinate the morally imbecile paranoiac George III. were by lunatics. It is a curious coincidence, Ray[1] remarks, that this monarch who suffered

[1] Mental Pathology.

so much from mental disease should have been pursued by insane people. In 1786 Margaret Nicholson, an old woman, attempted to stab him as he was alighting from his carriage; in 1790 John Frith, a lieutenant of the army, threw a stone at him through the window of the carriage in which he was riding; and in 1800 James Hadfield, a soldier, shot at him in a theater. During his illness, in 1788, insane persons often contrived to elude the restrictions of the palace and roam over the grounds. The persons who committed the first two assaults were so obviously insane that the Privy Council sent them directly to Bethlehem Hospital. Hadfield was brought to trial, and on this occasion Erskine made his great forensic effort resultant in acquittal of his client. Hadfield believed he had constant intercourse with God, that the world was coming to an end, and that like Christ he was a sacrifice himself for its salvation. He went to the theater because he would not be guilty of suicide. Though called upon by Heaven he wished that, though a seeming crime, his life might be taken away from him by others. He went to see Truelock (just before the shooting committed as a lunatic), who claimed that the Savior's second advent and the dissolution of things were at hand. This delusion mixed itself with that of Hadfield, who immediately broke out upon the subject of his own prohibition and sacrifice for mankind, although only the day before he had exclaimed that the "Virgin was a whore, Christ was a bastard, that God was a thief, and that he and Truelock were to be enthroned together." He once had the idea of firing over the king's carriage in the street, but believed that he should be immediately killed, which would not secure propitiation for the world. Hadfield had received several cranial injuries: he had a fracture of the second cervical vertebra; through a saber wound a portion of the frontal bone was lost, exposing the membrane. His attempt was simply to secure execution.

FIG. 4.—Ankarstrom.

The coalition of kings against the first French republic, which created the "Terror," was marked by a political assassination. "Swedish Gustav, sworn Knight of the Queen of France, will lead Coalesced Armies," Carlyle remarks, "had not Ankarstrom treacherously shot him, for indeed there were griefs nearer home." Ankarstrom (Fig. 4) was a Swedish gentleman who had become the leader of freedom-loving conspirators against

Gustav. He was born in 1760, and executed in 1792. Gustav was shot at a ball with a pistol concealed in a muff. Despite the suggestively feminine aspect of the stratagem, the muff procedure was a male device. Ankarstrom had a head excessively developed at the occipital region. There was a low, receding forehead. The nose was long, slender, and aquiline. Its bridge was arrested in development, as also was the lower jaw. Among the political consequences of this assassination was the seating of the French stable-boy, Bernadotte, and his descendants on the throne of Sweden.

Among the assassinations which marked the French Revolution were three of note. That there were so few is hardly surprising, considering the ease with which private hatred was satisfied by public denunciation. Among the members of the Republic Convention described by Carlyle[1] is Lepelletier Saint-Fargeau, "Old-Constituent, a kind of noble and of enormous wealth; he too has come hither to have the Pain of Death abolished." Saint-Fargeau voted for the death of Louis XVI. without delay, on a Saturday. At five that evening, Lepelletier Saint-Fargeau ran over to Fevrier's in the Palais Royal to dine. He dined, and was playing, when a thick-set man "with black hair and blue beard," in a loose kind of frock, stepped up to him. Fevrier and the bystanders bethought them of the King's Guards. "Are you Lepelletier?" asked he. "Yes." "You voted in the King's Business?" "I voted Death." "Scoundrel, take that!" cries Paris (Fig. 5), flashing out a saber from under his frock aud plunging it deep in Lepelletier's side. Fevrier clutches him, but he breaks off, is gone. Lepelletier lies dead; he has expired in great pain at one in the morning — two hours before that vote of no delay was fully summed up. Guardsman Paris is flying over France; cannot be taken; will be found some month's after, self-shot in a remote inn. This assassination, aided by its avowed advocacy by the Royalists, intensely enhanced the suspicional tendencies of the people, increasing the "Terror." The assassin (39 years of age) had a broad, low forehead, with eyes small and set close together. The nose was

FIG. 5.—Paris.

[1] French Revolution.

excessively developed. There were slender but well developed cheek bones. Both upper and lower jaws were arrested in development. He wrote on the back of his commission as Royal Guard, "My brevet d'hominem, let no one be disturbed. No one was my accomplice in the fortunate death of the scoundrel, Saint-Fargeau. Had he not been at hand I would have done a still better act; I would have freed France of the regicide, the parricide d'Orleans. Let no one worry. All the French are cowards, and I say to them:

> "People, whose crimes dismay everywhere bring,
> With joy and pleasure I quit life's race;
> Since only by death can one flee disgrace,
> Stamped on our foreheads in the blood of our king."

Another assassin who looms up prominently (whose act, like that of Brutus, has received approval from many fierce denouncers of assassination) is Charlotte Corday (Fig. 6). She was of stately Norman figure, in her 25th year, of beautiful, still countenance. She was styled D'Armans while nobility still was. "Barbaroux," Carlyle remarks, "has given her a note to Deputy Duperret — him who once drew his sword in the effervescence. Apparently she will to Paris on some errand." "She was a Republican before the Revolution and never wanted energy." "A completeness, a decision is in this fair, female figure." "By energy she means the spirit that will prompt one to sacrifice himself for his country." "What if she, this fair young Charlotte, emerged," Carlyle remarks, "from her secluded stillness suddenly like a star cruel-lovely with half-angelic, half-demonic splendor, to gleam for a moment and in a moment be extinguished, to be held in memory, so bright, complete was she, through long centuries." On leaving Caen, Normandy, she gave away everything except "Plutarch's Lives," in which she "could converse to the last with (her hero) Brutus." She killed Marat "in order to save the Republic." Marat from a benevolent, philanthropic physician had become a suspicional paranoiac, partly because of congenital tendency, partly because

FIG. 6.—Charlotte Corday.

of oppression, but chiefly, as W. L. Baum[1] has shown, from the onset of diabetes, which attained its height at the time Marat had the most marked suspicions of danger to the Republic. Charlotte Corday refused religious consolation and met death with exultation. She had a low forehead. The skull was platycephalic in contrast with other Norman skulls; it had a greater cranial capacity than usual in women; it was asymmetric and had rare pterygoid wormian bones. There was a rare median occipital fossa. The eyes were short, large, and unequally placed; the orbits were of unequal size; the superciliary ridges were well developed. There was a long, slender nose. The cheek bones were round. There was arrest of the upper jaw and a small undeveloped chin.

The assassination of Marat stimulated the Royalists. Aimee Cecile Renault (Fig. 7), aged 20, formed the design of assassinating Robespierre in 1794, after the failure of Amiral. May 23 Cecile presented herself at Robespierre's residence. Robespierre cannot be seen; she grumbles irreverently. They lay hold of her. She has left a basket in a shop hard by; in the basket are a female change of raiment and two knives. Cecile, examined by Committee, declares she "wanted to see what a tyrant was like." The change of raiment was "for my own use in the place I was surely going to." "What place?" "Prison, and then the guillotine," answered she. Cecile Renault believed she ought to give her life for the return of the king. She was executed with her entire family, who were involved in a Royalist conspiracy.[2] She had an exceedingly developed occipital region with a very low forehead. There was a long, narrow ear. The bones of the nose were arrested in development. The lower jaw was well developed.

FIG. 7.—Cecile Renault.

In the early nineteenth century many attempts at remedying political conditions by assassination were made on the continent of Europe. Carl Ludwig Sand (Fig. 8), born in 1795 and executed in 1820, killed Kotzebue, the dramatist, March 23, 1819. Kotzebue had become a reactionist, but Sand's main object was the idea of becoming a Christ for Germany, thereby securing the deliverance of

[1] Transactions of the Chicago Academy of Medicine, 1900–1.
[2] Carlyle: French Revolution.

humanity. He had a low forehead. His eyes were small and ill-shaped. The nose was well developed and the cheek bones prominent. There was arrest of development of the upper jaw and excessive development of the lower.

FIG. 8.—Sand.

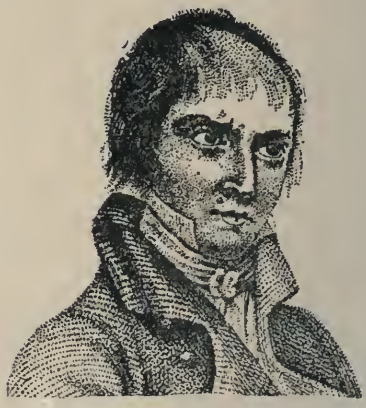

FIG. 9.—Louvel.

A similar political assassin was the French saddler Louis Pierre Louvel (Fig. 9). He was born in 1783 and executed in 1820. He assassinated the Duke of Berry in 1820. His plan was to effect a political revolution by killing all the Bourbons, and chose the Duke of Berry as his first victim. He was a paranoiac in whom the stage of transformation has been succeeded by the stage of exaltation. He had a low forehead, with long eyes set far apart and unequally placed, the right being lower than the left. There was arrest of development of the face and upper jaw. The lower jaw was small.

Louis Allibraud (Fig. 10), a clerk, born in 1810, was executed in 1836 for an attempt to kill Louis Philippe. He was a disciple of the extreme Jacobin, St. Just. He attempted to revenge the death of citizens killed in a strike at Lyons, claiming that Louis Philippe had violated his coronation oath as king of the French.

FIG. 10.—Allibraud.

Joseph Fieschi (Fig. 11) had been a member of the secret societies of Italy. He was born in Corsica in 1790, and executed in 1836. Aided by members of an Italian secret society he attempted assassination of Louis Philippe by an infernal machine. The attempt was due to the alleged violation of an oath by Louis Philippe, who had intrigued with the

secret society. There were superciliary ridges over each eye. The head was somewhat kephalonic in type. The eyes were small and unequally placed, the left being lower than the right. The nose was long and slender. The cheek bones were excessively developed. There was arrest of development of the bones of the face and upper jaw. The chin was receding.

FIG. 11.—Fieschi.

Jean Louis Verger (Fig. 12) was born in 1826, and executed in 1857. He was the son of a suicide, and had been deprived of his priestly functions because of the unfounded insane charges made against his *confrères*. He had marked hallucinations of hearing and decided persecutory delusions. He insisted on hearing high mass despite an excommunication. He wrote and spoke violently against the dogma of the Immaculate Conception, then about to be proclaimed by the Pope. While he anathematized his own enemies he avenged outraged religion by killing the Archbishop of Paris in church, with the significant cry, "No goddesses, no goddesses," and regretting, he said, only one thing, that he could not go to Rome to strike another more illustrious victim. He had a rather low forehead. The eyes were small and deep-set. The cheek bones were normal. There were long, handle-shaped ears, and the nose was arrested in development, as was also the upper jaw. The lower jaw was normal.

FIG. 12.—Verger.

A very similar assassination was committed by Cotilla Galeote (Fig. 13), who was almost a replica of Verger in his acts and delusions. He assassinated the Bishop of Madrid in 1886. He was condemned to death, but sent to an insane hospital in consequence of his insane acts after condemnation. He had a full, low forehead. The eyes were small, deep-set, close together. The ears were excessively developed. The nose was long and slender. There was

arrest of development of the bones of the face and upper jaw. There was a deformed palate and a V-shaped arch.

FIG. 13.—Galeote.

Nicholas Alphonse Aubertin (Fig. 14), a paranoiac inventor, attempted to assassinate Jules Ferry, December, 1887, because of persecutory delusions involving the State and himself. He was sent to the Bicêtre in 1888. He had a well developed head and forehead. The eyes were small and sunken. The nose was normal, and the upper jaw arrested in development.

Charles Edward Nobeling (Fig. 15), a Pole, was born in 1848 and died in 1878. He made an assault on William I. of Germany in 1873. The assault was the outcome of an attempt by the Polish

FIG. 14 —Aubertin.

FIG. 15.—Nobeling.

party to utilize the nihilist cry for political purposes. The head and forehead were well developed. The eyes were small and sunken. The ears were long and slender. The face was asymmetric. There was arrest of development of the bones of the face and jaw. The nose was well developed.

Jean Passanante (Fig 16), an Italian cook, born in 1849, attempted

to kill King Humbert in 1879. The elder sister had an imbecile son, an albino, a subject of tremor and of extreme asceticism. The elder brother was a paranoiac with systematized religious delusions. Passanante was a great reader of the Bible and an extreme socialist. His crime, like the crime of Bresci, who killed Humbert, was socialistic in origin, prompted by desire to prevent undue taxation for plutocratic contractors. He had a broad, high forehead. The eyes were unequal in size and place; the left was smaller than the right, and the right was lower than the left. The left cheek bone was more prominent and higher than the right. The ears were long and handle-shaped. There was apparent arrest of the lower jaw. Bresci had a lower forehead than Passanante, and his face presented similar asymmetry except that the sides were reversed.

FIG. 16.—Passanante.

Santos (Fig. 17), born in 1872 in Italy, stabbed President Carnot in 1894 in order to avenge the death of anarchists previously executed by the French. Santos was the youngest of six children, and the only one of the family who was not respected, the remainder being hardworking men and women. He left home at the age of eleven, and even then avowed anarchistic principles. His mother was made temporarily insane by her son's crime. The father had epilepsy, said to have been brought on by threats of death by the Austrians while their prisoner in 1848. The necropsy revealed meningoencephalitis over the frontal region. The head was small and the forehead low. The eyes were small, unequally placed, unequal in size, and abnormally shaped. The ears were long, handle-shaped, and pointed. The nose was small at the bridge, broad and flat at the alæ. The face, cheeks, and upper jaw were undeveloped. The lower jaw was seemingly normal.

FIG. 17.—Santos.

The Italian who killed Canovas for the torture illegally inflicted on the anarchists imprisoned in Spain was about 25 when executed. He had an asymmetric face with unequally placed eyes, a low forehead, asymmetric cheek bones, and arrest of development of the nose and upper jaw. At the necropsy meningoencephalitis was found.

Luccheni (Fig. 18), the Italian assassin of the Empress of Austria, has an asymmetric face with unequally placed pupils. The left eye is considerably higher than the right, the left ear higher than the right, both being long, jug-handled, and flaring. He has a retreating chin and a flattened occiput. It is an interesting fact that the Empress of Austria ceased her practice of hunting in Ireland because of the threats of the Irish agitators against the hiring of boycotted land. Although the crime of Luccheni has been charged to anarchy, it is much more probable that it was due to the "unredeemed" Italy faction. Luccheni was affiliated at one time with this faction.

FIG. 18.—Luccheni.

The granddaughter of George III., Queen Victoria, who other than in a somewhat higher intellect much resembled him, was attacked by five would-be assassins; all puberty lunatics, who made the attempts for purposes of notoriety. Oxford, for example, had manufactured a delusional secret "society" called "Young England." One of the rules of this "society" was that every member should be provided with a brace of pistols, a sword, rifle, and dagger, the latter two to be kept at the committee-room. A list of members' - factivives' (*sic*) names was given. "Marks of distinction: Council, a large white cockade; president, a black bow; general, three red bows; captain, two red bows; lieutenant, one red bow." There were also found in Oxford's trunk a sword and scabbard and a black crape cap with two red bows. One of the rules required every member to be armed with a brace of loaded pistols and to be provided with a black crape cap to cover his face, with his marks of distinction outside. Three letters in his handwriting were also found in his pocketbook, addressed to himself at three different residences, purporting to be signed by "W. A. Smith, secretary," and to contain statements of what had taken place at the secret meeting of the society. These were all headed "Young England," and dated 16th May, 1839; 14th November, 1839; and 3d April, 1840. In accordance with the English procedure all

the assailants of the Queen were found guilty, but insane, and sent to the criminal insane hospital pending her majesty's pleasure, which practically meant imprisonment for life.

Sipido, who made the attack on Edward VII. when Prince of Wales, seems to have been a puberty lunatic of the type of Oxford. He had been inspired by sympathy with the Boers and not with anarchy.

The first attempt at presidenticide in the United States was made by Lawrence, a paranoiac who claimed the United States as his heritage from the Stuarts. Lawrence in his assault on President Jackson, adopting the slogan of the United States Bank, charged Jackson with an attempt to ruin him through removal of the United States deposits from the bank, which had been created as a joint stock company, of which stock the United States had taken $7,000,000. Jackson's removal of the deposits revealed the disappearance of the bank's capital, inclusive of the stock subscribed by the United States. Lawrence was sent to the insane hospital, where he died.

The next attempt at presidenticide, that of John Wilkes (Fig. 19), the third son of the English tragedian Junius Brutus Booth, was the result of a conspiracy to overthrow the government at the moment of the North's success. The parties concerned (Americans born in the South) intended to kill President Lincoln, Vice-President Johnson, Secretary of State Seward, and the general in command at Washington. The plot was an inventively stupid one, since there was no organized force — only a few guerillas who could have aided the conspirators. With the exception of assassination, the plot was identical with that planned by Mosby earlier in the war, but discovered by Lincoln's police. Booth was 26 years old at the time of

FIG. 19—Booth.

Lincoln's assassination. As the names of Booth and his father show, the family was affiliated with the extreme branch of the English liberals. The earlier Booths had belonged to the section who were free-thinkers and members of the Calf's Head Club, who dined on a calf's head crowned with parsley on the anniversary of the execution of Charles I. John Wilkes, after whom Lincoln's assassin was named, was an English politician whose outrageous treatment at the behest of George III. had given rise to the rallying cry of "Wilkes and Liberty." Although the political relationships of the elder Booth in themselves were no evidence of the insanity, since they were practically those of the men who founded the United States, still his conduct, despite his histrionic genius, was that of a paranoiac. He was a mystic theosophist. He adopted Buddhist views as to the sacredness of animal life. Like many of the most sanguinary of the French Revolutionists, he was an intense zoophilist. His kindness toward animals was based on the doctrine of transmigration. He was a vegetarian and forbade his family to eat meat. He was well versed in different religions. He gave great importance to the Koran, which he annotated. He read the Talmud in Hebrew, and gravely discussed religious mysteries with Catholic priests. He never failed to bow his head in passing a church. He frequented churches of all denominations, participated with fervor in all their ceremonies, scrupulously observed all practices of devotion, and passed hours in prayer. At the time of Junius Brutus Booth's birth, theosophy was one of the phases of intellectual perturbation due to the French Revolution, and hence was a natural part of his training. John Wilkes Booth, according to J. G. Kiernan,[1] exhibited decided insanity of manner, which created a certain amount of fear among children. Both he and the elder Booth threw themselves into the parts they played to such an extent as to become the character and alter the course of the drama. The elder Booth while playing Richard III. refused in the last act to die, believing he was Richard, and fenced his oponent off the stage through the door into a street. His opponent, becoming exhausted from parrying his deadly thrusts, called upon the people to interfere. The head and forehead of John Wilkes were kephalonoid. The ears, excessively and abnormally developed, inclined strongly to the so-called Satanic type. The eyes were small, sunken, and unequally placed. The nose was normal. The facial bones and upper jaw were arrested in development, and there was a partial V-shaped dental arch. The lower jaw was well developed.

At the time of the intense American excitement over the con-

[1] *Journal of Mental Science*, July, 1887, p. 193.

tested election of Hayes, a religious paranoiac from Illinois, named the "Prophet Meyers,"[1] came to Washington with the intention of planting a bullet in the heart of Hayes when he took the inaugural oath. The night before Meyers encountered a gentleman whom he recognized as "John the Baptist." This gentleman, a member of the United States Secret Service, recognizing Meyers's mental state, led him quietly and gently to the proper quarters for incarceration in the insane hospital. In consequence a deed which would have thrilled the world and might have led to civil war, through the partisan hatred it engendered, was prevented. Meyers had intended this deed as a protest against the injustice done by the Electoral Commission, which "was a stench in the nostrils of the Almighty."

One of the succeeding assassinations was the act of a man of that Huguenot stock which has sacrificed much to its religious convictions. Probably no assassin ever executed went into court with such decided evidence of insanity. Charles J. Guiteau (Fig. 20) shot President Garfield for the openly avowed reason that he was about to wreck the Republican party, and because the conception leading to the homicide was an inspiration of the Deity. From the evidence presented at the trial, the results of the autopsy, and of the microscopic examination, alienists the world over agree as to his insanity and its type. W. W. Ireland[2] is of opinion not only that Guiteau was insane, but that J. G. Kiernan, treating him as a paranoiac (PrimäreVerrückte), put him into his right place among the insane. This form of insanity, based either on an acquired or inherited neuro-degenerative taint, manifests itself in anomalies of the conceptional sphere,[3] which while they do not destructively involve the entire mental mechanism,

FIG. 20.—Guiteau.

[1] Godding: *American Psychological Journal*, 1883.
[2] Through the Ivory Gate, p. 213.
[3] E. C. Spitzka: *New York Medical Gazette*, May 15, 1880.

dominate it. There is a permanent undercurrent of perverted mental action peculiar to the individual running like an unbroken thread through his whole mental life; obscure it may be, for these patients are often able to correct and conceal their insane symptoms, but it nevertheless exists and only requires friction to bring it to the surface. Since this psychosis depends in its original type upon brain deformity, not disease, the good or ill health of the patient has no bearing on the question of insanity. This test should not be given the absolute value it has been in the Guiteau and Czolgosz cases. Guiteau's ancestry was defective on both sides. The mother suffered from an acute brain disease prior to and at the time of his birth, and was for years "a nervous invalid." The father was regarded as a lunatic by clergymen, lawyers, alienists, and others with whom he came in contact. A brother of the father died insane in Bloomingdale Insane Hospital. His hospital history shows that there was hereditary insanity in the family for generations prior. The homicide's brother showed strange peculiarities. The sister is a hysteroepileptic, and was once adjudged insane in Illinois.

With such a family history, hereditary stigmata are to be expected, and defective as is the record, these are found. Drs. McLane Hamilton (called by the State), E. C. Spitzka, and J. G. Kiernan (called by the defense) agree that the skull exhibited decided asymmetry. This, as Kiernan remarks,[1] extending to the face, produced what Spitzka called a "lop-sided smile," and also involved the eyes. Spitzka lays great stress on the asymmetry of the convolutions in either hemisphere, especially those of the island of Riel. There were on the right side five fissures and six straight gyri, on the left seven fissures and eight gyri. The right hemisphere was less developed than the left. Spitzka states that aberrations in development of the kind discovered in Guiteau's brain have not[2] been found in others than persons of unsound mind, and the only finding, in the brain of constitutional lunatics of paranoiac tendencies which promise to establish a relation between the insane and the state of the brain, consists in such architectural anomalies. The pathologic lesions found in Guiteau's brain were adhesions of the dura mater to the inner table of the skull along the longitudinal sinus, and adhesions of the dura to the pia mater and to the brain at spots on the vertex. Other pathologic defects were found in the brain. Marked asymmetry was evident in the head and face. The head and forehead were fairly well developed. The eyes were set close together; the right was apparently higher than the left. The ears

[1] *Chicago Medical Review*, Dec. 18, 1881.

[2] *American Journal of Neurology and Psychiatry*, vol. i.

were excessively developed. There was arrest of development of the alæ of the nose; the jaws were normal. Microscopic examination revealed, in the opinion of E. O. Shakespeare, such marked evidence of disease and defect as to warrant the opinion that Guiteau was mentally abnormal.

An attempt on the life of President Cleveland was made in 1885 by Tobey Allen, a colored paranoiac, who had delusions of persecution by witchcraft which had led him to commit grand larceny for the purpose of being sent to the penitentiary as a protection against his persecutors. He made his way into the White House, but was detected before reaching the family apartments. The motive for his visit was the desire to compel Cleveland to enforce the laws against witchcraft.[1]

Speaker Randall was assaulted by Colonel Pinchover, a paranoiac with delusions as to claims against the United States. Randall recovered from the injuries inflicted, and his assailant was sent to the insane hospital. Blaine, when Secretary of State, narrowly escaped death at the hands of a paranoiac named McNamara, whose assault was stimulated by the outcry against Blaine in connection with the Mulligan letters.

Patrick Eugene Joseph Prendergast (Fig. 21) was 25 years of age when he shot and killed Carter Harrison in 1893. There had been, during the campaign which elected Harrison to the mayoralty, much agitation over the question of track elevation to prevent railroad homicides. This was one of the issues on which Harrison had been elected. Prendergast, a poor newspaper carrier, had loudly advocated the issue in his ward and had made himself prominent thereby. He had met Harrison during the campaign and claimed that he had been promised the position of corporation counsel, so that he could expedite the cause of track elevation. He had barely a common-school education and was destitute of even the ordinary business notions of law. He went

FIG. 21.—Prendergast.

1 J. G. Kiernan: *Journal of Nervous and Mental Disease*, 1886.

to the corporation counsel's office, who by way of a jest introduced him as the coming corporation counsel. Six months after Harrison's election he shot and killed him, on the ground of his nonfulfilment of his promise in regard to track elevation and his failure to appoint Prendergast corporation counsel. The trial of Prendergast was a formal one. Nearly every leading alienist of Chicago testified that Prendergast was a paranoiac, or expressed opinions to that effect. The trial resulted in conviction. A second trial was granted, which resulted in conviction and subsequent death of the prisoner. Through the efforts of the special attorney hired to prosecute, the family were induced to refuse an autopsy by an appeal to their superstitions. Prendergast's paternal grandfather had been insane. The unanimity with which experts retained by the prosecution arrived at the conclusion that he was insane and a paranoiac left no doubt as to his mental unsoundness. The following data were obtained by myself: Height, five feet seven inches; weight, 132 pounds; hair, red, coarse, and stiff, very little upon face. Nose fairly normal, thin at bridge, broad at alæ. Ears large and projecting, lobes short and broad, tragi both well developed; helix broad, with typical tubercles at the upper and outer border of the ear. Lips, upper small and thin, lower excessively developed, more prominent because of undeveloped upper jaw. Arrest of development of the bones of the face, especially at the alæ of the nose. Zygomatic arches normal, but appear prominent owing to the arrest of the bones of the face. Lower jaw normal. Forehead receding. Head sunken at the bregma; occipital region excessively developed; circumference, 22.2 inches (57 millimeters); anteroposterior 7.75 inches (20 millimeters); lateral 6.36 inches (16½ millimeters); lateral index 82, therefore extreme brachycephalic. Feet large, hands normal; fingers long and skinny. Width outside first permanent molar 2.25 inches; width outside second bicuspid 2 inches; width of vault 1.25; height of vault .75, anteroposterior 2.

Czolgosz (Fig. 22), the assassin of President McKinley, was the son of a Polish laborer imported under contract, born in Michigan and educated in a Polish Catholic school until the age of six. At this age he was taken from school, put to work in a foundry, and forced by his stepmother to cook his meals. The utmost efforts of government detectives do not show any violation of major or minor morality until the assassination. He was a worker in the mills of the steel trust, and lost his place through one of the mills being shut up by the trust to limit production. During the campaign of 1896 he supported the doctrine of protection as an

expression of state socialism. He accepted the statement that the mills would be opened on the election of McKinley in good faith. During 1900 he became affiliated with the extreme state socialists. While studying anarchistic literature and proclaiming himself an anarchist, he still retained a belief in state socialism. He made a demand upon McKinley for work, which he says was refused. According to the statements made to Drs. Putnam and Crego, he had always enjoyed good health. This, however, is no evidence *pro* or *con* the existence of mental disorder based on cerebral deformities. Indeed, paranoiacs and degenerates are often not only noted for their good health, but many of them for longevity. The crime bears no evidence of mental disorder on the one hand, nor is it contradictory thereto on the other. A Pole trained in Polish history in schools where American doctrines were not taught might have committed just such a crime. As a product of the man's environment, it would not have the morbid significance the like crimes have among the English and the American of the Northern United States. While the brain has been pronounced healthy, still it is a significant fact that no microscopic examination worthy the name has been made. It is admitted by E. A. Spitzka that the brain presented anomalies. The trial was purely formal. The prisoner's attorneys, yielding to popular prejudice against their client, did not secure the delay which a case of such importance required. As in the Prendergast case, the warden of the prison pandered to superstitions anent the dead and refused to allow the removal of the brain for microscopic study.

FIG. 22—Czolgosz.

The best attainable photograph of the assassin reveals suggestive stigmata. A line drawn through the face at the median line reveals marked lateral asymmetry. The left ear is considerably higher than the right. The left eye is higher and larger than the right. There

is decided difference between the size and shape of the two orbits. The left is large, round, and full; the right is small, with the outer angle much contracted. The inner border of the eyelid drops considerably. The most marked asymmetry occurs in the cheek bones; the left is much larger and more prominent than the right. The lower part of the face is fairly normal. The skull has kephalonoid tendencies.

The examination of his mental condition was simply negative and valueless for scientific purposes. It is perfectly easy to destroy all expressions of insanity by arousing suspicion. Sane or insane, Czolgosz, suspicious of all legal procedures, would be an exceedingly difficult subject with which to deal. The course of the court in refusing to accept his plea of guilty and forcing him to accept counsel is justifiable only on the ground of assumed insanity. There is no reason to believe him insane, but the logic employed to prove his sanity was not altogether scientific.

The first feature that strikes one on analysis of these cases is that with the exception of Clement, Guiteau, and possibly but not certainly Fieschi, the moral imbecile element is not specially prominent. In both Clement and Guiteau the salacity vicaration of religion was evident. Both displayed a tendency to confidence operations. In the others, the conception leading to the assassination was, except in the case of the English assailants of Queen Victoria, altruistic in nature. The notoriety element which is so prominent in puberty lunatics was especially dominant in the English cases, and to a certain extent in Guiteau. The use of a socialistic cry to cover other designs was evident not only in the case of Nobeling, but also in the case of Berezowski, who shot at the Czar during the 1867 Exposition. In both cases Polish projects rather than socialism was the inspiration. In Verger and Galeote religious reform within the church was attempted by devout though insane priests. They, however, had forgotten their oath of obedience to constituted authorities. In the case of the assassin of Canovas, a desire to end illegal methods employed against anarchists prompted the crime. The assassination of Carter Harrison forced track elevation to the front, and thus indirectly saved many lives.

The frequency of facial asymmetry and allied arrests of development among assassins whose crimes seem the direct outcome of their environment, and hence not abnormal, is rather striking. This is peculiarly impressive in the case of Fieschi, whose crime from his training in Corsica would seem perfectly justifiable. The frequency of kephalonic and allied types of skull is also rather striking when

the fact is remembered that this is often due to healed hydrocephalus. The claim that the insane do not have accomplices is shown to be erroneous; indeed, the existence of the clinical type, transformed insanity, negatives this claim. The uselessness of capital punishment as a deterrent is evident in the fact that the assassination of Carnot was followed by several other anarchistic attempts despite the execution of Santos in the teeth of the evidence of his insanity.

A CASE OF ADIPOSIS.

BY AUGUSTUS A. ESHNER, M.D.,
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That increased deposition or increased accumulation of fat is not necessarily or solely dependent upon the quantity and quality of the food is manifested in various ways. It is a not uncommon experience that some individuals will not acquire even a desirable amount of adipose tissue under any circumstances, while some become obese in spite of all efforts to the contrary. In these instances heredity appears to exert a more profound influence than diet. In addition to these conditions of generalized deposition of fat, there may be localized accumulation, sometimes single, at other times multiple, and occasionally symmetrical. The latter seem to be in no way related to dietetic influences. Finally the distribution of the fatty tissue may be disseminated rather than either general or circumscribed. In some cases pain is a prominent symptom, and examples of this kind have been grouped together under the designation of dolorose adiposis, as suggested by Dercum.[1] The first cases of this disorder were observed at the Philadelphia Hospital, and I have myself reported an instance of the kind from the wards of the same institution.[2] I wish, in this connection, to report a case in some respects like the last referred to, but in which pain was not an especially marked feature.

F. S——, a woman 59 years old, who had been employed as a cook, was admitted to the Philadelphia Hospital complaining of dyspnea, of pain in the shoulders and knees, and of general obesity. Two years previously there had been shooting pains in the bones, especially in the lower extremities. Shortly afterward the legs began to swell, the swelling at times disappearing, to return subsequently. Swelling of the knees persisted, and was attended with pain, which was aggravated by movement and manipulation. The patient had been increasing in size for several years, and complained of pain in the muscles. On examination she was found to be extremely obese, particularly about the shoulders and the thighs, and the breasts and abdomen being pendulous. The woman was of large stature and face; hands and feet were not disproportionately bulky.

[1] *American Journal of the Medical Sciences*, 1892, p. 52.

[2] *Philadelphia Medical Journal*, Oct. 8, 1898; *Journal of the American Medical Association*, Nov. 12, 1898.

She weighed 251 pounds, and was unable to walk unaided. While in the hospital she complained of the right leg feeling cold and the left hot. She suffered a good deal from gastric distress, with nausea and vomiting. The temperature was normal.

There is a close resemblance of the foregoing case to those of dolorose adiposis. There is no obvious reason why pain should necessarily be associated with the condition of fatty accumulation, and the case herein reported may be looked upon as belonging to the same class, but without marked pain.

The question whether there is any relation between adiposis or obesity and myxedema is too large and too difficult for consideration in this connection, but it has been shown that thyroid extract judiciously used has scarcely a less favorable influence upon the former than upon the latter. This raises the further question whether abnormal fat deposition, or fat accumulation, may not be dependent upon faulty function of the thyroid gland.

In a fatal case of dolorose adiposis reported by Dercum, at the meeting of the American Neurological Association in 1900, the fat, which during life had been supposed from microscopic examination to be embryonal in character, was found to be entirely free from this peculiarity. There was, however, interstitial inflammation of the peripheral nerves, degeneration of the columns of Goll in the dorsal and cervical regions of the spinal cord, and unusual pigmentation of the cortical cells of the cerebrum. The brain and the pituitary body likewise presented no alteration. The thyroid gland was small and free from colloid material. The opinion was expressed that the symptoms may have resulted from the presence in the circulation of abnormal substances, resulting from derangement in the function of the thyroid gland. Death had resulted from fatty degeneration of the heart, and there was general fatty infiltration of the internal viscera and the muscles.

At the same meeting Burr referred to a case in which, after death, a new growth of the pituitary body was found, which, however, was thought to be accidental. There was, besides, distinct disease of the thyroid gland, and interstitial neuritis, and degeneration of some fibers of voluntary muscles.

TREATMENT OF ABORTION.[1]

BY CHAS. B. REED, M.D., CHICAGO,
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The most frequent disturbance of pregnancy can well be the most interesting; an event occurring once in every ten pregnancies demands our best attention. The pronounced and often long-continued hemorrhages and the not infrequent septic infection of themselves produce serious disturbances of health, while the numerous chronic diseases which result from imperfect involution lend to abortion a peculiar importance.

The limitation of the term abortion to the term preceding fetal viability is convenient for description, and the treatment up to the sixteenth week can be satisfactorily standardized, as there is a happy coincidence in the arbitrary and pathological boundaries.

Every woman subject to conception must be regarded as aborting when hemorrhages occur and one period is passed.

In accordance with the different conditions which come under observation, and give variance to the treatment, it is best to adhere to the division of abortion, first into general prophylaxis, and then the measures indicated respectively in threatened, inevitable, and incomplete abortion.

Prophylaxis is highly important and largely dependent upon the etiology; as, for instance, in habitual abortion the cause can be often attributed to syphilis, chlorosis, incipient tuberculosis, chronic inflammatory conditions of the genitalia, and malpositions of the uterus.

Appropriate treatment undertaken before pregnancy occurs, to relieve or cure the disease, together with regulation of the bodily functions during pregnancy, will accomplish much, while the administration of the sedatives, opium, bromide, chloral, etc., and mental and bodily rest at the critical period, will frequently enable the woman to go to term.

That an abortion has *per se* consequences which sometimes predispose to another cannot be doubted. Thus, subinvolution is common after abortion, for the contractions of the uterus are less powerful, the muscular tissue less perfectly developed and less responsive to irritation.

The customary irritation is also less, since the stimulation arising from lactation and nursing is absent. The patient usually gets

[1] Read before the Illinois State Medical Society, May 21, 1901.

up too soon, and the consequent pelvic congestion prevents the proper uterine reduction. A general condition of anemia may have a like result.

Here, then, is a suggestion in treatment which begins the prophylaxis after the occurrence of abortion. The uterus should be stimulated to contract by means of ergot for a reasonable period *post abortum*, and possibly hot douches might be added provided they can be given properly. Furthermore, the patient is required to remain in bed much longer than for a normal labor. This is regarded as a measure of extreme importance, and should be enforced until the danger of subinvolution is past.

The occurrence of abortion presents distinctive diagnostic phenomena, and with the onset of acute symptoms hemorrhage of some degree becomes prominent in all cases, accompanied by heaviness and abnormal sensations in the lower abdomen which are not necessarily painful. The hemorrhage is usually bright-red, persistent, and free from clots.

Examination reveals the *os externum* only partially opened, the cervix either closely or only slightly dilated; contractions are rarely present and typical pains are absent. The condition is recognized as "threatened abortion," and the ovum is not yet certainly lost.

The etiology is again highly important in regard to the treatment. Is the hemorrhage due to disease which will be intensified by pregnancy or cause danger to the mother, such as tuberculosis or valvular heart disease? Is the woman anemic from repeated hemorrhages? Nature must be assisted to throw off the burden, for if the fetus is dead the pregnancy is physiologically terminated, and the abortion should be accelerated.

It is difficult to make a diagnosis of fetal death. Some reliance must be placed upon the history of a previously expelled dead ovum and the consideration therewith of an intermittent discharge of fresh or brownish blood. If added to this is a hard, round uterus which does not show signs of growth on repeated examination, does not correspond to the period of pregnancy, exhibits loss of tension on palpation, a diagnosis can be made with reasonable certainty.

If the cause of the abortion is not clear and life is in no way endangered, the egg should be preserved if possible. Here all the measures employed in threatened abortion are again serviceable, and the woman should remain in bed for two or three days after the cessation of hemorrhage, and return to it if the symptoms reappear. When the cervix is closed and hemorrhage is present to a dangerous degree, threatening the life of the mother, no time should be

lost in debating whether or not the abortion is inevitable, nor can expectant methods be employed.

The indications are very clear to stop the hemorrhage and empty the uterus, and fortunately we have at hand a method which will always accomplish the first and usually the second, namely, the tampon—uterine if possible, vaginal always. The tampon, tightly applied, can be left *in situ* safely for from twelve to twenty hours, and can be repeated if the hemorrhage persists. This will secure the early and complete expulsion of the secundines, and frequently the contents of the uterus will be found on the tampon when it is removed. A careful examination of the expelled particles must be made, to determine whether the ovum is complete. Occasionally the egg is thrown off with the membranes intact, but usually only a mass of decidua mixed with membranes can be found.

Where the abortion is inevitable, the os is dilated, the cervix patulous, and the ovum presents in the canal near the cervix. Hemorrhage is persistent, increasing in quantity and clotted. The connection with the uterine body is lost, and the unruptured sac can often be pulled into the vagina with the finger, while even if the sac ruptures the ovular remnants usually can be easily removed because of the low situation in the cervical canal. The entire egg when released from its uterine attachments is sometimes expelled by compressing the uterus between an external hand and two fingers in the anterior or posterior fornix (Hoenig). When the egg lies wholly or largely in the uterine cavity, it is much more difficult to remove, but under narcosis the finger can be carried through the canal and the mucous membrane efficiently cleared. In these cases, in the absence of contraindications, the tampon can be employed, and after from twelve to eighteen hours the uterine contents will be evacuated or the os be found sufficiently patulous for digital or instrumental curettement of the cavity.

In pregnancy up to the third month it is often doubtful whether or not the egg has escaped, but in all cases where the phenomena of abortion have not lasted a long time it is easy to determine, for the cervix is still wide, the walls soft, the internal os admits the finger, and exploration gives the desired information.

Early in pregnancy the decidua is the most important part of the abortion, the membranes less, and the fetus not at all; but with the involution of the vera and reflexa and the formation of the placenta, the latter assumes the most importance and retains this position until in the latter half of pregnancy the fetus supplants it. Hence, in early abortions it is of prime importance to secure the complete removal of the decidua from the uterine cavity.

When the cervix is partly open and hemorrhage is present, it means that the abortion is incomplete, and if the hemorrhage is severe the prompt evacuation of the uterus is imperative. Active interference is not dangerous if the operator is aseptic. If the cervix permits, digital curettement is more efficient and satisfactory.

Anesthesia is usually required, and chloroform is to be preferred. Now the entire hand can be introduced into the vagina if necessary, while the external hand grasps the fundus and crowds it down over the index and if possible the middle fingers of the internal hand. The ovum is separated from the uterine wall with the fingers, the uterine cavity carefully emptied and then washed out with a two-per-cent solution of lysol.

In the choice between digital and instrumental curettement, the individuality of the operator finds considerable latitude. The digital operation is more satisfactory, and in the majority of cases as easily performed as the instrumental.

Those cases must also be considered where the rigidity of the abdominal walls does not permit the uterus to be forced down over the internal finger by the outside hand; when the fundus lies too high to be successfully reached by the finger, and when the abortion is too early to permit sufficient dilatation for the introduction of the finger. In very early abortion, before the softening due to pregnancy is well established, the uterine walls are firm, and if an entrance can be forced eventually by the finger it is with a great expenditure of time and energy, and even after succeeding the finger may be numb and useless on account of the labor undergone.

In these cases a skilful operator will obtain equally satisfactory results by forcibly dilating the canal with the Hegar or Goodell dilators. The danger of lacerating the cervix with these instruments is remote. The cervix is pulled down and steadied by means of a curved four-toothed tenaculum forceps during the preliminary dilatation, and also while using the curette. The sharp curette is the most desirable and gives excellent results in the early abortions. It is very important in these cases to revise the uterine cavity with the finger after instrumental curettement, to determine the thoroughness and completeness of the operation.

After the sixth month the sharp curette becomes a dangerous agent in the uterus, for the walls of the organ are frequently so softened that the curette may scrape through to the peritoneum or be pushed through the fundus.

It has been demonstrated that the normal uterus and vagina will drain very satisfactorily if let alone; hence, unless there is indica-

tion of severe hemorrhage, it is better after curettement to leave both the uterus and vagina free from gauze packing. The uterus is now free to contract, the serous and other discharges flow away unhampered to the outlet, and the chances of infection are greatly diminished.

The use of ergot to hasten the abortion by stimulating the contractions is generally advised, but the practice should be unhesitatingly condemned. The tetanic contractions induced by ergot are not favorable to the satisfactory emptying of the uterine cavity. In the cases where it is usually exhibited, the tampon accomplishes the same result more efficiently and certainly, and is safe with all, while ergot is an unreliable and dangerous agent. The somewhat trite saying that "ergot should be avoided while anything remains in the uterus" is to be definitely enforced here. The use of ergot should be reserved for those cases where hemorrhages threaten, after the complete evacuation of the uterus and in cases of subinvolution.

The tampon, properly applied, is an invaluable aid in abortions. It stimulates uterine contraction, dilates the os, and stops hemorrhage, both mechanically and dynamically, besides maintaining a condition of surgical cleanliness. The clot which forms on top of the tampon mechanically causes the separation of the ovum in a very natural and satisfactory way.

There are conditions, however, where the tampon cannot be employed. The principal contraindication is in the presence of sepsis. After the sixth month also the uterus is so large that it can contain a large amount of blood, and here the vaginal tampon should only be employed in association with uterine packing.

The application of the tampon is made with the patient on the table or in the cross-bed position. The pubic hair is clipped. The external genitalia are scrubbed with green soap and douched with lysol solution two-per-cent, followed by 1:4000 bichloride. The patient is catheterized, and the vagina washed with green soap and hot water, followed by lysol douche two-per-cent. The hands and instruments are prepared as for a laparotomy.

To be effective, the portio vaginalis should be entirely surrounded by gauze or cotton pledgets introduced by dressing forceps under visual control, while the perineum is depressed with a Sims speculum. Then on the broad base made by the pledgets and the os, the vagina is gradually filled to the vulva and a binder applied. Unless the vagina is packed tightly the tampon fails of its mission, and if too tight it gives unnecessary discomfort.

The temperature is taken every four hours, and a rise of 1.5° F. indicates the removal of the tampon.

The necessity for asepsis in all cases must be reiterated; the fact that pregnancy and labor are physiological processes does not free the woman from danger of infection.

It is hardly questioned that the introduction of substances from without constitutes a more serious menace to the woman than any evil she may develop unaided, hence it is desirable to avoid unnecessary interference of every kind, including the douche. The time for the douche is before and after the curettement, to cleanse the canal and wash out any loose detritus from the uterus and vagina, and to provide for the elimination of germs introduced from without at the time of the operation; but here its function ends. It is unnecessary, useless, and injurious both in normal labor and abortion, as the experiments of Kronig, confirmed by Doderlein, Menge, Williams, and others have shown. The germs in the vagina are normally in a state of attenuated virulence, being rendered so by the peculiar acid secretion of the vagina bacillus. Wadsworth has shown that pathogenic germs exceptionally persist in the vagina throughout pregnancy and labor, and where present in severe cases they persist after repeated douching with 1-to-5000 bichloride. This agrees with Kronig's experiments fully. Kronig has also shown that the vagina requires more time to eliminate pathogenic organisms after douching than without. In normal cases the vaginal secretion renders the organisms inert in twenty hours; after douching, thirty-six to forty-eight hours is required. The douche simply removes the protective secretion and gives the organisms a better chance to thrive. Furthermore, the attempt to sterilize the vagina by douching alone is no more reasonable than to attempt to sterilize the hands by allowing a few quarts of hot antiseptic solution to run over them. In proscribing the douche, an associate and false friend of many years is banished, together with a multitude of elevated temperatures.

In case of abortion where sepsis is already present, as shown by the elevation of temperature and rapid pulse, or by a rapid pulse while the temperature remains near the normal, active intervention is urgently indicated. The uterus should be curetted at once and the cavity thoroughly washed out with a hot one-per-cent lysol solution. Bichloride is to be avoided.

When the uterus is once thoroughly cleaned and irrigated, it seems best to leave it entirely alone and "treat the patient" by assisting her to resist the toxins which the uterus takes up. These

cases ought never to occur in practice where the patient has been under the control of the physician from the first, but even when met with, if treated at once, they usually terminate happily; but when decision is reserved and the case treated expectantly, the results are not so satisfactory. It is a well known observation that the fatalities from abortion are mostly among cases criminally produced.

Where the patient is profoundly anemic from sudden or long-continued hemorrhage, the urgent symptoms can be temporarily relieved by the introduction of from one to five pints of normal salt solution by means of an aspirating needle, all being carefully sterilized. The needle should be introduced under, not into, the mammary gland of one or both sides, as may be required.

It would hardly seem necessary to refer to the tent, except for its occasional unwelcome appearance. Under no circumstances can the use of tents be justified. They are unnecessary, imperfect, and it is not possible to completely sterilize them. This latter condition alone renders them injurious and dangerous, and precludes their use by conscientious practitioners.

The introduction of styptics into the uterine cavity must be expressly condemned as unnecessary and always harmful. An exception is possible in the case of iodine, which is the least objectionable.

Every abortion must be regarded as a severe surgical case and treated as such in justice to the patient and the attendant. The practitioner should be alert at all times to impress upon his clientage that abortion is a very serious matter and requires the best judgment and skill obtainable in its management, for where one woman passes through these perils successfully, many are seriously affected, either directly or remotely, and no physician can be free from anxiety until the case has terminated.

DILATING IRRIGATIONS IN THE TREATMENT OF CHRONIC GONORRHEA.[1]

BY E. A. FISCHKIN, M.D., CHICAGO.

The treatment of chronic gonorrhea, like the treatment of every chronic disease, has two objects in view: first, the elimination of the original cause of the morbid process; and secondly, the restoration of the altered structural conditions.

We know from the treatment of acute gonorrhea how difficult it is to attain the first object, how unsatisfactory are our attempts to combat the gonococci. As we have little or no means at our disposal of destroying the microorganisms without injury to the mucosa, we are not able to arrest the course of the disease, or even to influence its process. "We cannot prevent," says Oberlander, "the setting in of a more or less chronic inflammation; neither injections of any kind, nor any internal administration of drugs, is capable of accomplishing it." Still less favorable are the conditions for the elimination of the gonococci in chronic gonorrhea, as the organisms are no longer situated on the surface, but are deeply embedded in the tissues and are not accessible to therapeutic measures until we have improved the structural conditions. In chronic prostatitis, for instance, we find sometimes gonococci in the urethral discharge, and see them disappear only after the prostatitis is cured.

According to Finger, there are two forms of chronic gonorrhea: first, a purely mucous, superficial form which results in superficial non-constricting excentrically retracting cicatrices; and the second form in which the process extends to the periurethral tissue and corpus cavernosum, and thus leads to stricture. The subepithelial connective tissue exhibits in this second form the most important changes and forms the site of the chronic inflammatory process proper. This consists of an infiltration of the connective tissue, which has a decided tendency to transformation into retracting connective tissue. In the more recent cases we find that the subepithelial connective tissue contains a loose or dense infiltration consisting of mononuclear or epithelioidal cells, sometimes mixed with pus cells. This infiltration may involve the lacunæ and glands embedded in the subepithelial tissue. It frequently contains many new-formed blood-vessels and has the appearance of granulations. As the infiltration grows older the spindle cells become more abun-

[1] Read before the Illinois State Medical Society, May 21, 1901.

dant, the interfibrillary tissue becomes denser and firmer, and there finally results a tissue which resembles a cicatrix anatomically—the stricture.

Finger has found in his investigations that the glands of Littre are the cause of these obstinate inflammations. The gonococcus invading the glands causes swelling and desquamation of the inner epithelial lining, and migration of leucocytes. This causes obstruction of the excretory duct, as the result of which the glands cannot evacuate their contents, become distended, and irritate the adjacent connective tissue. This also becomes filled with round cells and results in inflammatory infiltration—that is, granulation and cicatrization. If we now succeed in getting rid of the cause of the whole process—that is, the obstruction of the ducts and the resulting retention of the glandular secretion before the round cells in the periglandular tissue have changed into fibrous tissue—there is a possibility of the cells becoming absorbed.

What follows from this in regard to treatment? The only logical conclusion is to remove the plugs and restore the normal function of the glands. This can obviously be attained only by mechanical means, by stretching and dilating the mucous membrane so that the plugs may become loosened and immobilized and brought to the surface so as to be washed away by a stream of water. The dilatation also stretches the meshes of the adjacent connective tissue, loosens the cellular infiltration contained in these meshes, and promotes their absorption. For this purpose, sounds of a more or less large caliber, followed by irrigation, have been employed. The inefficiency of this method is obvious. When we perceive how quickly the meatus closes after the withdrawal of the sound, we must assume that the folds of the mucosa contract equally and that the urethra collapses before irrigation can be completed.

Another method which is now largely used in the treatment of chronic gonorrhea is the dilatation of the urethra by hydrostatic pressure—the employment of the so-called Janet irrigations. But it seems to me that the use of the Janet irrigation in chronic gonorrhea is of doubtful value and its effect merely imaginary. I take exception to this method for the following reasons:

1. The hydrostatic pressure is not strong enough to produce sufficient dilatation—at least, not in all cases. Very frequently it is not able even to overcome the resistance of the compressor urethræ, and if we tell the patient to relax the compressor by making the attempt to urinate, we may see the urine flowing into the reservoir instead of the red permanganate solution flowing into the bladder.

This resistance of the compressor may serve to bulge out the anterior urethra, but not in a sufficient manner, and in no case can simple irrigation dilate the posterior urethra.

2. Comparing the amount of fluid which we can press into the urethra by a hand syringe with that injected by hydrostatic pressure, we find that with the former it is about one-third greater than with the latter. I found on the average in the one case 10 to 12 cubic centimeters, and in the other 7 to 8 cubic centimeters.

3. Measuring directly the dilatation of the pendulous urethra after washing out the urethra, once by hydrostatic pressure, and the second time by instrumental irrigation and examining the urine passed immediately after, I could discover urethral threads in the first case, while there were none in the second.

These seemed to me sufficient reasons for the assertion that effective dilatation and flushing of the urethra is only possible by the employment of suitable instruments.

Lohnstein was the first to construct such an instrument which should combine a mechanism for dilatation with means for irrigation. His instrument is constructed on the principle of the Otis urethrometer. It consists of a straight catheter contained in a tubular shaft which is divided by four short spring staffs; by action of the regulating screw these staffs can be compressed and bent into spindle form, thus dilating the corresponding part of the urethra. This instrument was not, however, adopted by the profession because the spindle is too short and not sufficient to dilate a larger portion of the urethra, and it is impossible to bring the spindle into the posterior urethra, on account of the shortness of the instrument and its straight form.

Two years ago Kollmann described his straight and curved four-bladed dilating irrigators, which seem now to be largely used. They consist of a central tubular shaft in which a double-current catheter is incorporated, and to which four blades are attached by means of cross-bars. A screw mechanism moves the bars and lifts up the blades, dilating the urethra in four directions. But Kollmann's instruments have many disadvantages:

1. The complicated arrangement of the parts makes a free and sufficient flow impossible, interfering with the principle of irrigation.

2. The instruments are of too large a caliber (27 Charrière) and cannot be introduced into the majority of urethras.

3. They have too many joints and edges; thereby their introduction is made difficult.

4. They are too heavy (eight and a half ounces), and may easily by their pressure and the irregularity of their surfaces cause injuries to the posterior urethra.

5. They open by joints and not by their own flexibility; therefore, in regulating the dilatation the finger is unable to detect the degree of resistance. On account of the rigidity of the instruments it is easy to overdilate.

6. Their high price—about $65 for the two instruments.

Having employed Kollmann's instruments for some time, I was compelled for the reasons above mentioned to abandon their use. But recognizing the value of dilating irrigators, I have attempted to construct a new instrument, which has, in my opinion, many advantages over Kollmann's. It consists of three parts so arranged that when closed it is introduced as an ordinary sound. The main body is a tubular shaft or catheter which has a groove on its convex side. Inside this groove a bar is movable, which is united by means of small struts or levers, with a broad fenestrated blade, the latter having the same curvature as the catheter and being joined to it at the vesical end. A system of screws inside the handle moves both bar and blade downward, but the blade being joined at the end, and being moved by a screw of a larger diameter, is forced to bend outward, thus separating from the catheter and dilating the urethra. The struts or cross-bars which secure a parallel expansion are fastened to the blade and hooked to the bar, having at this end a free play of about one millimeter, enough to provide a certain degree of elasticity. A marker slides over the micrometer screw, and shows on a double-sided scale the amount of dilatation. On the lower part of the handle are two projecting hose clips for the attachment of rubber tubes. A movable shield serves to close up a large meatus.

The advantages of my instrument are:

1. Its small caliber (22 Charrière), therefore easy introduction in every urethra and easy withdrawal without complete closing of the instrument. This obviates the danger of catching and mutilating the mucous membrane.

2. A lighter weight (6 ounces).

3. A sufficient in and out flow.

4. An easy fixation in every part of the posterior urethra.

5. A smooth surface, absence of joints, and only one groove, thus securing a better surgical sterilization.

6. Only three edges; therefore more mucosa being washed by the running fluid.

7. A certain degree of elasticity which is given to the instrument by the flexibility of the dilating blade and the free play of the lever ends; the finger regulating the screw feels the gradual increase in the resistance of the pressure, securing thus a safer and more careful dilatation.

8. The use of the same instrument for both the posterior and anterior urethra.

9. Its reasonable price, which will probably not exceed $18.

BOOK REVIEWS.

LIBERTINISM AND MARRIAGE. By Dr. Louis Jullien. Translated by R. V. Douglas. Price, $1.00. Philadelphia: The F. A. Davis Co. 1901.

This wearisome little work of 165 pages deals with the effects of chronic and latent gonorrhea in both men and women. It is simply a restatement of the views of Noeggerath, to which modern gynecology seems to have added very little.

The work opens with an introduction on professional discretion, which would perhaps better be labeled professional indiscretion. The quixotic Juhel Rénoy is commended for his earnest efforts to prevent marriage of chronically infected men. It may be the duty of the medical profession to look after the health and morals of the entire world, and to insist upon improving everything, but to some of us it would appear that we have done our entire duty if we have acted in an advisory capacity.

In the volume which we are reviewing, as we said before, we find the restatement of the dangers of chronic genito-urinary infection. It is arranged in the peculiar French style, there being numerous chapters and subheadings which add nothing to the value of the work, but serve rather to confuse the underlying statement of pathological conditions. The source of the infection cuts very little figure in the treatment or management of this class of cases. The author quotes the following instance occurring in the practice of Dr. Duriard; while he admires the ingenuity, he condemns the morals:

"A commercial traveler, who was newly married, was obliged to go on a journey for several months, and to leave his young wife in a town in which she had but few acquaintances. He begged an intimate friend of his to see her often during his absence, and render her existence less lonely. The friend pointed out the objections to this, but madame joined her entreaties to those of her husband, and their mutual confidence was so complete that they cared very little for the opinion of others. There appeared to be no likelihood of danger.

"The husband went away, and for several weeks everything went on all right. And then there happened what was bound to happen: the consoler exceeded his duty, and madame forgot she was not a widow.

"One morning it happened that the imprudent friend heard some one knock at his door. 'Come in!' It was the washerwoman, young, pretty, and not overstraightlaced. Alas! He was still in bed, and enjoying such sweet dreams that he almost accused his mistress of being indirectly guilty of the infidelity which occurred — besides, she would never know. She did know, and only too soon, unlucky woman! for after the ordinary interval they were both infected, and both attacked with a well marked running. Nevertheless there was plenty of time, for the traveler was not to return for some weeks. But, fatal surprise! there arrived the same day a letter from the husband, who announced that his journey had been cut short and that in three days he would return to his wife.

"Overcome with despair, the guilty person hurried off to a doctor who was much attached to him, and begged him to cure in three days a case of recent blennorrhea so thoroughly that her husband could have intercourse with her

without harm. The doctor refused to accept the responsibility, but he listened faithfully to all the details, and gave his unfortunate client an extra-medical opinion which was faithfully followed.

"In those days the railway did not go to Lyons, and the journey between Lyons and Chalon was done in the steamboat. The friend made haste to write to the husband that he would come to meet him at the hotel at which he usually stopped. He took with him two nice girls who were not overparticular, and one of them undertook, without fear of failure, the important part which was entrusted to her. At Chalon, after the first greeting, the friend told the traveler that he had made the acquaintance of two nice girls on the boat, and they had agreed to have supper with him. It was almost impossible to refuse. The supper passed gaily, the ladies were charming, especially the one who sat next to the husband, and the dishes, which had been specially selected, and the champagne, caused the conjugal fidelity, which had been maintained during all the journey, to be wrecked within sight of port.

"On his arrival the husband was tenderly received by the wife, but a few days later she became sulky, wept, and wound up with severe hysterics. The unlucky man, who was already ill, did not hesitate a minute as to the cause of this anguish; he threw himself on his knees before the wife he believed he had wronged, and confessed his fault with so much grief, and with such sincerity of repentance, that she generously forgave him.

"The doctor cured all three, having the time necessary."

The translation is much too literal to make easy reading for the English student.

THE CRIMINAL. By Havelock Ellis, M.D. Third Edition. Contemporary Science Series. Price, $1.50. London, England: Walter Scott. 1901.

This volume is the revision to date of the first comprehensive work on criminology published in English some twelve years ago. The author (a trained physician), equally at home in literature, biology, and sociology, has the judicial qualities so much needed and so often lacking in medicine and sociology. The present work is a dispassionate presentation of the facts gathered from all countries, by workers in this branch of science. In the study of criminology from a scientific standpoint, the English-speaking peoples have lagged behind those of the continent of Europe. While the American has far outclassed the Englishman in this particular, still, with the notable exception of New York State, his results have barely leavened the body politic. Though Dr. Ellis has done justice in an eminent degree to American researches, noticeably those of Talbot of Chicago and Wey of Elmira, N. Y., some omissions are to be noticed. The valuable results of Dr. C. K. Mills of Philadelphia, as to brains of criminals (presented to the American Neurologic Association in 1886) do not receive recognition. Taken as a whole the book in these days of criminologic study merits a place in the library of every thinking physician. The physician is preeminently the guide in family sociology, and here in many respects this volume will prove a most efficient aid. The omission of Verlaine from the third edition as not being fully representative of the criminal is justified. An American addition might profitably have been made in the person of Ruloff, the criminal philologist, so well analyzed by Dr. Burr (*Journal of Psychological Medicine*, 1878). The case of Wainewright (the poisoner for insurance purposes) could have been supplemented by that of Holmes, his

American imitator, so well studied by Arthur MacDonald and Talbot. While the author leans to the teratologic standpoint, he does not fully accept the position taken by Meynert, Sander, E. C. Spitzka, and Kiernan, that between the congenital criminal type, the imbecile, and the congenital paranoiac, the psychologic relations and their anatomic bases are intimate and close. The questions Dr. Ellis has attempted to afford the sociologists the means of answering are: Whether the criminal be a normal person who has wilfully committed an abnormal act; whether he be a victim of acquired disease like epilepsy (which Ellis puts in this category); whether he be an atavistic savage in the midst of civilization; whether he be a "degenerate;" and whether there be a criminal type. The validity of the evidence of these positions is carefully discussed. The position taken is that the criminal is unsuited to his environment (society), and hence should be removed from it. The primary business of law is to ascertain the facts of the crime; that of science to deal with the criminal. Like all the volumes of the Contemporary Science Series, it is well issued and adequately illustrated.

Quiz Compend on Irregularities of the Teeth. By Eugene S. Talbot, M.D., D.D.S. Chicago: E. M. Clay & Co. 1901.

In his preface the author says that this work is not intended to take the place of a large and complete treatise, but is to be used as a primer and reference book for advanced students. The quiz compend principle having answered so well in medicine, it is believed that it will be useful for dental students. Especial stress is laid upon the etiology of dental irregularities, as the proper application of therapeutic principles is always dependent upon an appreciation of causes. The description of special treatment of dental irregularities is avoided, as it is presumed that teachers generally have favorite methods of their own. The surgical correction of dental deformities bears the same relation to dentistry that orthopedic surgery does to medicine; correction of deformity is not a necessary result of dental practice. A person to practice surgical correction of the jaws and teeth should have mechanical ingenuity, be familiar with mechanical movement, and versed in pathology—in fact, medically educated. Fixed systems of appliances are of only limited applicability. The means must be adapted to the case, and not the reverse. In the correction of dental deformities, general principles must be relied upon, rather than a "system."

The above is quite as applicable to surgical appliances in general as it is to the correction of dental deformities. In too many instances patients are adapted to a system rather than the system to a patient.

In speaking of congenital factors and maternal impressions, we are told that not all abnormal conditions of the jaw can be attributed to heredity. Of maternal impressions, the writer takes the advanced ground that in most cases they are simply arrests of development, and that whatever there is of mental shock in their production acts purely in a physical manner.

Of the various subjects that are discussed *in extenso* are consanguineous marriages, constitutional disorders, and the developmental neuroses in relation to irregularities of the teeth.

EDITORIAL COMMENT.

TETANUS FOLLOWING THE EMPLOYMENT OF ANTITOXIC SERUM IN ST. LOUIS.

The unfortunate occurrence of eleven cases of tetanus following the employment of antitoxic serum manufactured by the City Board of Health of St. Louis, Missouri, must leave a most unfortunate impression both upon the minds of laymen unfamiliar with the details of the manufacture and employment of antitoxin, and upon all those members of the profession whose conservatism still makes them hesitate to employ it.

The cause of the misfortune remains unexplained, but it is well to point out that it is an accident which has but once before occurred, and, therefore, is unlikely to occur soon again. Inasmuch as the newspapers throughout the country have seen fit to publish interviews in which various physicians qualified to speak upon the subject, and sometimes entirely unqualified to discuss it, have expressed their opinions, it may be well to devote a short space to a careful consideration of the conditions under which such an accident might be possible. We do this without any positive information concerning the condition of things in the laboratory at St. Louis, knowing nothing of the methods employed or of the details of their work.

The opinion has been expressed that blood serum from a horse suffering from tetanus might contain (1) tetanus bacilli, (2) tetanus toxin.

1. It is contrary to our knowledge of the biology of the tetanus bacillus that it should circulate in the blood of a diseased animal, as its peculiar relation to oxygen seems to require that it live in some badly nourished tissue in association with other microorganisms by which the oxygen present is consumed. It is, of course, possible that our information concerning the biology of the organism is incomplete, and that under some condition, not known to us, it may enter the blood and circulate there. This is, however, contrary to all the facts thus far collected.

2. It is well known and proven that tetanus is a toxic affection whose symptoms are caused by a poison easily collected from cultures of the organism, and found in the circulating blood of an animal suffering from the disease. The horse is probably the most susceptible animal to tetanus. It is inconceivable to us that the total quantity of blood possessed by a horse should contain so little toxin

that the horse showed no symptoms, and yet contain so much toxin that a few cubic centimeters of the separated serum should be able to produce fatal tetanus in human beings into which it might be injected. It was not a mild intoxication, but a fatal intoxication and infection, that succeeded the employment of the serum. It is said that the particular horse from which the serum was secured died of tetanus some weeks after the blood from which the serum was secured was drawn, and that at the time of bleeding it showed no symptoms of this disease. It is, therefore, scarcely conceivable that the tetanus from which the children suffered could have depended either upon bacteria or toxin contained in the blood of the horse at the time it left its body.

The possibility of accidental tetanus infection resulting from the operation of antitoxin injection might be considered in a single case, but is too remote to deserve any consideration where so many cases have occurred.

Antitoxic serums are prepared in almost all instances by trained bacteriologists who know the technique necessary to protect the serum from contamination, so that serious contaminations of the serum must be a rare accident. The natural bactericidal power of the serum, the care exercised in the necessary manipulations performed in laboratories, the addition of 0.4 per cent trikresol or carbolic acid as a preservative, all combine to guarantee that the serum will not spoil. The addition of the antiseptic being succeeded by turbidity necessitates that the serum be filtered, this filtration, which is usually made through diatomaceous earth, being an additional safeguard in that it tends to remove bacteria that may have fallen into the serum during the previous manipulations. These many maneuvers combine to protect the antitoxic serum from contamination and are safeguards by which the patient is protected. That they are good safeguards is evinced by the rarity of such an accident as has occurred in St. Louis; that they are insufficient safeguards is shown by the fact that thirteen cases of tetanus resulted from the use of a serum supposed to have been subjected to most of this routine. If it has not been the custom of every laboratory to test every antitoxin for tetanus organisms before it is bottled for sale, this circumstance will certainly establish the importance of the additional precaution in all cases.

The recent accident has occurred at a municipal laboratory run upon an economical basis, not in a commercial laboratory run with strict attention to business detail. In an institution of the former class the help is apt to be chosen from among the favorites of

political "bosses" rather than selected because of their particular fitness for the work in hand. Such help is rarely actuated by any sincere endeavor accurately to execute the instructions received, and may work the greatest havoc through carelessness.

The inference to be drawn from this—and it is an important lesson—is that work of such scientific accuracy should be done only by those who are able to afford to pay for the services of the best help the country can supply, and able to select their men without the coercion or suggestion of outside influences. Such conditions do not exist except in the active competition that makes business houses anxious to secure and maintain trade through the preparation of the best article of any kind that can be made. In our judgment, therefore, antitoxins should be made only by commercial manufacturers, and should be subject to the rigid discipline that results from strenuous competition.

TREATMENT OF TONSILLITIS.

In recent numbers of MEDICINE there have been frequent references in our abstract department to the treatment of tonsillitis. It is one of the most frequent diseases to which people are subject, causes much discomfort, and is a disease in which an efficient local treatment gives such prompt improvement of the patient that in the minds of the laity great credit is reflected upon the practitioner's skill, and upon medical science in general. We are prone to gauge our efforts largely by the danger of an illness, and physicians imbued with the idea that tonsillitis is almost devoid of danger are apt to forget that the patient's comfort is worthy of consideration.

Numerous arbitrary divisions have been given of the varieties of tonsillitis, but from the standpoint of treatment they may be looked upon as an infection of varying degrees of severity. As a rule, suppuration does not take place, there is only an accumulation of infectious material in the crypts of the tonsils, constituting the ordinary or simple tonsillitis. The constitutional reaction from this inflammation may be sharp, but it is usually short. If the infection passes from the crypts to the peritonsillar tissues, an abscess may result which runs the usual course.

Too often the local treatment of the tonsil is neglected. The physician is content with prescribing an antipyretic, a gargle, and directing the patient to stay in bed. The gargle is of very little use, and the antipyretic merely relieves the discomfort of the patient, the disease being allowed to terminate by natural resolu-

tion. The local treatment of the tonsil consists in emptying the crypts, which may be done in a variety of ways. A simple and quite efficient means is by pressure. This may be applied in any convenient way: one of the best is with the finger, introducing it at the side of the mouth, pressing the tonsil firmly against the side of the pharynx, and by direct pressure the crypts are emptied. The same thing may be accomplished by the bowl of a spoon, but the finger is the best instrument. This method of treating tonsillitis will appear somewhat brutal to the patient, and may be accompanied by considerable pain, which can be mitigated by spraying the throat with a solution of cocaine.

A somewhat more elegant method is the introduction of a cotton applicator dipped in an antiseptic solution into each of the crypts. Another method is to use a syringe, injecting an antiseptic solution into the crypts. If the cotton applicator is used, it may be dipped in any strong antiseptic solution; one of the best is nitrate of silver. It causes considerable reaction, however, as does iodine. Guaiacol is an efficient antiseptic and will abort most of the simple cases of tonsillitis; it causes only a temporary burning, and no reaction.

THE HOFF TREATMENT OF TUBERCULOSIS.

A medical report of the case of Frederick Hammann is found in the *Medico-Legal Journal* for October, 1901. The article is from the pen of Carlton Simon. Frederick Hammann was the patient sent by the *New York Journal* to Vienna to test the merits of the Hoff treatment. The leading points in his medical history show that six years before he was sent to Vienna he had an attack of pleurisy, followed later by bronchitis. He returned to his work as a clerk as soon as he was able, but continued to suffer from what he thought was malaria, having frequent colds and an increased heart action which he attributed to weakness. At the time of the diagnosis of tuberculosis he was 22 years of age, five feet six inches in height, and weiged 117 pounds. There was cough, he complained of pains under the right clavicle, had fever, and had lost flesh and strength for three or four weeks. The physical examination showed an infiltration of the right apex. The sputum contained tubercle bacilli, and an *x*-ray examination showed haziness of the right apex.

The patient reached Vienna and went under Dr. Hoff's care December 26, 1900. The diagnosis of tuberculosis was confirmed, and the patient's sputum was injected into six guinea-pigs, one of which died of acute tuberculosis on the twelfth day.

The patient was placed upon Dr. Hoff's mixture, which is composed of:

Acidi arsenicis	0.1
Kali carbon dep	0.2
Acidi cinnamylic	0.3
Aqua dist	5.0

Mix and dissolve by boiling until a perfect solution results; then add:

Cognac	2.5
Ext. laudan. aquosi	0.3
Aqua dist	2.5

Six drops of the above mixture to be given on sugar in a half wineglass of water, the dose being gradually increased until 22 drops are administered.

Combined with this medication were daily applications of cold packs, with subsequent rubbing of the chest and back after careful drying. Before retiring a woolen jacket without sleeves was immersed in cold water and put on next to the skin, the nightshirt over this, and allowed to remain on throughout the night. In the morning this jacket was removed and the patient thoroughly rubbed down with cold water, then dried and allowed to dress. When there was a febrile reaction the following was given:

Aquæ cinnamomi	70.0
Tinct. chinoidini	2.5
Chinin	0.55
Elix. acidi halleri	drops 10
Syr. cinnamomi	20.0

Sig.: Tablespoonful three times daily.

At the end of the first week of treatment the patient's weight rose from 117 to 125 pounds, and there was freedom from night sweats and fever. Seven weeks after the treatment was instituted the cough had disappeared, and there were no outward manifestations of the disease. Before leaving Vienna the sputum was found to be non-infective for guinea-pigs, and there were no bacteriological evidences of the disease. On his return to New York City all traces of tuberculosis had disappeared, the breathing capacity had increased, and the general health was much better.

We have quoted the article quite fully, as it is the first medical report which we have seen of a case which excited considerable interest among the public, and was much commented upon by the lay press. Extended comment is scarcely necessary, as equally marvelous results have been reached by other treatment, or indeed with no treatment at all. The article in question is accompanied by two pictures, one showing the patient before treatment and the other after. We fancy that that part of the treatment which consists in putting on a flannel jacket dipped in cold water which is to remain on the chest over night will not commend itself to many physicians.

Of course, no importance is given to the fact that this patient had evidently been tubercular ever since his attack of pleurisy six years before he was sent to Vienna. During all that time he had been subject to exacerbations, which shows that the infection was chronic and the patient had a high resistance. There was an exacerbation with involvement of the right lung, a few weeks before he was sent away, which was brought on by confinement in an office. He was taken from these unfavorable surroundings, and given an ocean voyage, complete rest, and a change of climate, together with adequate feeding. That these were more important elements in the treatment than the cinnamon, arsenic, and cognac is certain.

The report is devoid of some essential details, and the prescriptions have been copied verbatim, though we think that American apothecaries may have some difficulty in filling them, should our readers desire to follow the method.

THE SURGERY IN PRESIDENT McKINLEY'S CASE.

We have refrained from commenting upon the surgery in President McKinley's case, as the information that has thus far been available has been largely derived from newspaper reports, which are, in the main, unreliable when dealing with scientific matters. There appears in the *Buffalo Medical Journal* for October, 1901, a report by James Parmenter, who was one of the surgeons assisting at the operation. This report may be considered official. Of the details of the operation we shall not speak, as they are already familiar and are heartily approved of by the leading surgeons of the world. All agree that the proper thing was done promptly, and that all that surgery could do for the injured man was done.

We direct attention to one procedure, not in a sense of criticizing the surgeons who were in attendance, but for the purpose of discussing the desirability of such procedure. The article of Dr. Parmenter states that "the abdominal cavity was thoroughly irrigated with salt solution two or three times during the operation." In speaking of the wound of entrance of the stomach, it is said that the edges were somewhat ragged, and through the opening considerable gas and a small quantity of the stomach contents had escaped. This was quickly caught upon compresses.

In the literature a few cases can be found of acute general septic peritonitis cured by abdominal drainage associated with more or less continuous irrigation by large quantities of normal salt solution, and in a few instances by feeble antiseptic fluids allowed to flow through

the abdominal cavity. From a wound such as that sustained by President McKinley, considerable time must elapse for a general infection of the peritoneal cavity. If the patient is kept quiet and all food withheld, he is much more likely to have a localized than a general peritonitis. The effort of the surgeon in the repair of such a wound should be to close it accurately so that there may be no further leakage, and to remove whatever contents of the intestinal tube may have escaped into the peritoneal cavity. We believe that the approved method is by dry sponging, and then to close the abdominal cavity without irrigation. If septic material has escaped from the intestinal tube, the dry sponging is quite as likely to get the bulk of it out as would the use of irrigating fluids. If septic matter has escaped and involved the peritoneum, it should be the aim of the surgeon to limit the subsequent peritonitis so far as possible, the patient for this purpose being given no food, and the abdominal peristalsis controlled. The peritoneum has a wonderful power of limiting the spread of inflammation under favorable circumstances, and if the peritonitis can be prevented from becoming general, the chances for the life of the patient are greatly improved.

The irrigation of the peritoneal cavity with normal salt solution is, at best, an imperfect method of getting rid of septic material which has escaped into the abdominal cavity, and it may be an efficient means of distributing such pathogenic germs as may have escaped to all parts of the peritoneal cavity. The dry treatment of the peritoneum, if there is infection, favors a localized peritonitis, and enhances the patient's prospects of recovery.

This is not to be considered as a criticism upon what was done at the operation, as the outcome of the case can be in no sense attributed to the irrigation. The President did not suffer from inflammation of the peritoneum, either local or general; indeed, his death seems to be entirely disconnected from anything that was or was not done at the operation, and to be attributable to causes over which surgery had no control. We merely discuss the question of irrigation in a general sense, and as applicable to similar cases.

The "toilet of the peritoneum" which occurred so frequently in the clinical reports a few years ago is much less frequently seen. The impossibility of sterilizing an infected peritoneum has been recognized, and if the surgeon must take the chance of a peritonitis it would better be localized than general.

ABSTRACTS.

MEDICINE.

Temperature, Pulse, and Respiration in the Diagnosis of Diseases of the Brain.—

J. T. Eskridge concludes a lengthy article in the *New York Medical Journal* of September 28, 1901, by the statement that the temperature, pulse, and respiration offer valuable information in the diagnosis and prognosis of certain diseases of the brain. A change in the character of the respiration, rather than in its frequency, is sometimes one of the first positive symptoms of organic intracranial disease, especially of tubercular meningitis. A respiration that is more frequent while the patient is asleep or unconscious than it is during the waking or conscious moments is very strong evidence of organic disease of the brain so situated as to interfere with the respiratory center.

Apoplexy due to hemorrhage is attended with greater disturbances of the temperature of the body soon after the occurrence of the stroke than is the case when apoplexy is due to thrombosis or embolism. The cerebral hemorrhage attended by hemiplegia is usually accompanied by a slow fall in the axillary temperature, occurring within an hour or less, and the fall is most marked on the paralyzed side. After reaction has occurred, which commonly takes place in from eight to twelve hours, there is a rising temperature, which is a little greater on the paralyzed side.

In cerebral thrombosis there is little disturbance of temperature before the end of the second day, except in the severest cases. An elevation beginning with the second day, extending to the fourth day after the stroke, is significant of thrombosis and shows that secondary softening has taken place, which, if extensive, makes recovery doubtful.

If the temperature on the paralyzed side remains persistently elevated some weeks after a stroke, it shows that the softening and inflammation are going on, and the prognosis is correspondingly grave.

The writer says that it is premature to formulate definite conclusions on the temperature, pulse, and respiration in injuries to the brain. It is possible that if these cases received more detailed study, useful deductions might be made from a considerable number of them. The following tentative conclusions are justifiable:

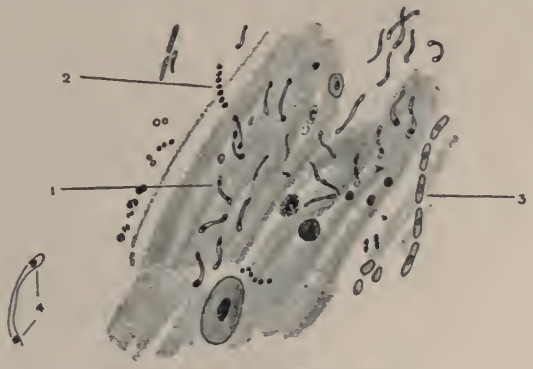
(*a*) In injuries to the head where the temperature does not reach normal or slightly above after a few hours after receipt of the injury, the prognosis is very grave. The higher the temperature, the greater the possibility of contusion and laceration of the brain and its membranes. The greater the variation of the temperature from normal, either above or below, the worse the prognosis.

(*b*) A rapid, weak, intermittent, or irregular pulse denotes danger. The pulse that is at first slow, but soon after becomes rapid, indicates a progressive intracranial lesion and justifies a bad prognosis.

(*c*) An exceedingly slow and intermittent respiration indicates a lesion at the base and posterior fossa. A respiration at first nearly normal in frequency, but which later becomes quite rapid, indicates a rapidly fatal case.

A Double Stain for the Diphtheria Bacillus.—

Robert L. Pitfield, in the *University of Pennsylvania Medical Bulletin* for September, 1901, says that the culture method on serum is the best method of diagnosing diphtheria, but it is difficult of application in the country and in places where there are no laboratories. The inconvenience of an incubator and culture tubes is



DIPHTHERIA BACILLI FROM THROAT.
(*Diagramatic.*)
1. Diphtheria bacilli in fibrid masses.
2. Streptococci.
3. Sponulating bacilli (subtilis?).
4. Characteristic chromatin in diphtheria.

usually beyond the general practitioner. The author has found that the simple staining and microscopic examination of the throat exudate is quite as useful as is the microscopic examination of the urine. His method is to take a probe armed with absorbent cotton

and rub it firmly on the exudate in the throat. The swab is then taken to the office, where a clean glass slide is moistened with a drop of water and the surface of the swab rubbed over the glass. It is then dried by passing through a flame three times, avoiding overheating, at the same time warming it sufficiently to fix the preparation. A drop or two of Loeffler's blue, sufficient to cover the dried exudate, is then placed on the slide and allowed to remain a few minutes, the excess being removed by water and the slide being dried with blotting-paper and examined by an oil immersion lens. In diphtheritic cases the eye is attracted by masses of fibrin stained deeply blue. The bacilli, if present, are seen more or less curved and often clubbed at one or both ends. Occasionally the ends are tapering. These organisms never take the stain evenly, but the coloring is denser in places, so that the bacilli seem to have bands or straps, or they may appear to be broken in the middle. The most characteristic appearance is a black or bluish-black point situated at one or both poles of the bacillus. If these point-bearing bacilli are found in the fibrin, one can be very certain that the case is diphtheria. Other organisms are found in diphtheria membranes when stained in this way, but the peculiar chromatin granules serve to distinguish the diphtheria bacilli. The writer has verified many of his observations by cultures, and has found that this simple, direct examination of the throat exudate is reliable as a clinical method.

The Frequency in Distribution of Goitre in the Island of Montreal.—

George A. Charlton, in the *Montreal Medical Journal* for August, 1901, gives a study of the distribution of goitre on the island of Montreal. The territory comprised in the investigations is about thirty miles long by ten miles wide. In general, the configuration of the island is a plain, gently sloping in all directions from Mt. Royal, which arises abruptly in the center of the island. The soil varies from a sandy loam at the extremities of the island to a soft clay plentifully strewn with granite boulders at the borders. In certain localities a heavy blue clay forms the lower strata of the soil. The depth of the soil ranges from a few inches to several feet, but it is nowhere of very great depth. There are few natural springs in the island, and consequently few marshes, and those found are due to the accumulation of surface water.

The citizens of the city of Montreal and those people living near the shore use river water chiefly from the Ottawa; this contains a very small percentage of salts and lime. People living inland depend upon wells which are shallow and invariably contain more or

less surface contamination. In the city of Montreal it is rare to have a person born and bred there afflicted with goitre, though it is quite a common disease in the surrounding rural districts.

The writer's studies lead to the conclusion that there is a relation between the surface and hard waters and the development of goitre. In one of the districts upon the island of Montreal which formerly presented large numbers of goitrous cases, a distinct diminution was noted in the prevalence of the disease after a common water-supply derived from the river was introduced. He is of the opinion that the drinking-water from shallow wells is not the only factor in the development of goitre, as in the study of one of the parishes in which the disease is very rare the general configuration of the land is flat and the wells are only from six to ten feet deep. There is, however, a relation between the nature of the soil, the shallowness of the wells, and the prevalence of goitre. When the overlying soil is glacial clay, although the wells are shallow, goitre does not occur; where, on the other hand, the soil is sandy and porous, goitre is very common, although there is considerable variation in the depth of the wells.

Myositis Ossificans.—

F. W. Burton-Fanning, in *The Lancet* of September 28, 1901, reports a case of myositis ossificans. The patient, a man 33 years of age, was admitted to the Norfolk and Norwich Hospital because of an increasing difficulty in opening his mouth. At the age of 8 years his left shoulder gradually became stiff; at the age of 12 the movements of his right knee became impaired. Following this there was stiffness in the left hip, sides of the chest, and lower part of the back. The immobility of these parts had been slowly increasing since the onset. At the age of 26 the right arm from the shoulder downward was much swollen, and the skin was red and tender. After a time the acute swelling passed off, and then the arm was found to be fixed in an extended position, while the movements of the shoulder previously impaired were further diminished. Flexion and extension remained at the wrist, but the forearm could only be supinated one-half. Two years later stiffness of the right hip was noted. During the winter of 1898 there was difficulty in opening the mouth, but this passed off during the summer, only to recur the following winter. Since the legs became affected the patient has had numerous falls, but has never injured himself seriously. The patient has been free from other diseases, with the exception of an inflammation of the margin of the eyelids.

The father of the patient suffered with the same disease, which began when he was 15 years old, and continued until his death at the age of 33, from an accident. At the time the father died the disease had not reached the same degree as that noted in the patient.

Examination at the time of his admission to the hospital showed that both erector spinæ muscles were completely replaced by bone, the natural outline of the muscle being preserved. The deep muscles of the back of the neck were similarly affected. There were bony plates between several of the ribs on each side, and along the anterior border of the left quadratus lumborum was a hard band fixing the twelfth rib to the crest of the ilium. The pectoral muscles were involved, markedly limiting the movements of the shoulder. On the right humerus there was a bony mass involving the triceps muscle and preventing flexion at the elbow. In the lower extremities the quadriceps extensor in each thigh was almost replaced by bone.

The Spread of Tuberculosis by Coughing.—

L. N. Boston, in the *Journal of the American Medical Association* of September 14, 1901, describes a mask made of wire, so designed as to hold in front of the face a couple of microscopic slides about three inches from the mouth. Such a mask he has had worn by a number of consumptive patients, to determine if they emitted a spray when talking and laughing, or clearing the throat, or by their characteristic hacking. They were instructed to remove the mask during the paroxysm of coughing, as the ability of the latter to project the tubercle bacillus contained in droplets to a considerable distance had already been demonstrated. The naked-eye appearances of the films obtained upon the glass slide varied greatly, certain slides showing many droplets, others showing a few, while a third variety presented a finely spread film, very thin, seldom showing any distinct droplets. Of the fifty specimens obtained, thirty-eight were found to contain tubercle bacilli; in fully one-third of the positive cases the bacilli were very numerous. Patients showing tubercular laryngitis, and those who talked loudly, or who were frequently clearing their throats, gave the largest amount of spray.

The writer points out that this method of collecting sputum has a limited range of usefulness in the insane, and with infants, as during the act of coughing, slides may be held in front of the mouth, and thus sputum may be obtained for examination. It may also be found useful in children in whom the sputum cannot be collected.

As it has been shown that the secretions of the mouth and of the respiratory tract are given off in a fine spray in both health and disease, it is reasonably fair to suppose that other diseases may be conveyed by the same medium, and that the work accomplished through the study of consumptives is a step which bids fair to modify, in a measure, the hygiene of infection.

Accessory Thyroid Tumor.—

O. F. Theisen, in the *Albany Medical Annals* for October, 1901, reports the case of a woman 67 years of age who had a tumor as large as a hen's egg situated at the base of the tongue, extending somewhat deeply into the substance of that organ. It was covered with smooth mucous membrane and was of a deep-red color. The tumor was resilient and appeared to be vascular. The glands of the neck were not involved, and the patient was not cachectic. The tumor was not connected with the epiglottis. There was no pain, and respiration was but little interfered with. Thyroid tablets were administered for six weeks and appeared to have some effect in reducing the size of the tumor.

A brief synopsis of the cases of accessory thyroid tumor of the tongue is given, together with his reasons for making the diagnosis. As the tumor was not removed, no examination of its structure could be made. An interesting point in the history of the case was that when the patient was a young woman she had a well marked goitre. At the time she came under observation the thyroid gland could not be felt. A point in the diagnosis was the variable size of the tumor, which is characteristic of glandular structures.

Malarial Nephritis with Massing of the Parasites in the Kidney.—

The frequency of reports of cases in which large masses of malarial parasites are found in the internal organs, and comparatively

few or none in the peripheral circulation, has been increasingly common of late. They add not a little to the difficulty of the diagnosis of malarial conditions, as heretofore the absence of the plasmodia from the peripheral circulation has been regarded as proof positive of the absence of malaria.

A report by James Ewing (*American Journal of the Medical Sciences*, October, 1901) cites the case of a girl 17 years of age, who had enjoyed good health until she was employed as a servant in July, 1900, on Long Island, when she suffered from jaundice and pallor and was unable to work. On September 12 she was taken acutely ill with chills and fever, and was admitted to the hospital five days later. The physical examination of the heart, lungs, and liver was negative. The spleen was enlarged, and there was slight edema of the legs. The urine contained two per cent of albumin, and was found to have epithelial cells, blood cells, and amorphous urates. A clinical diagnosis of typhoid fever with acute nephritis was made.

At the autopsy the anatomical diagnosis of acute hemorrhagic nephritis was made. Microscopic examination of the kidneys showed them to be filled with the malarial parasites. The lining cells of the convoluted tubules were almost entirely destroyed by extreme swelling and degeneration. The tubules were distended and uniformly filled with masses of vacuolated cells. The glomeruli contained a number of pigmented cells and a few parasites within the capillaries. The parasites were small and of uniform size, deeply pigmented. They were identical in appearance with the full-grown forms of the estivo-autumnal parasite. Their numbers and massing were similar to the reported fatal cases in which the brain, heart muscle, and bone marrow are involved.

Heredity in Appendicitis.—

F. Forschheimer, in *American Medicine* of October 5, 1901, calls attention to the fact that the heredity of appendicitis receives no mention in American medical literature. Foreign writers have reported a number of families in which this disease was frequent. Talamon says that the reason this subject has been overlooked in medicine is due to the fact that the clinical forms and methods of treatment of appendicitis have been discussed, to the neglect of the etiology.

Forschheimer reports three family histories in which appendicitis and bowel disturbance were very common. In the first family there was a train of symptoms going through all the members of the second

generation. These refer to gastrointestinal disorders associated with nervous symptoms and circulatory disturbance. In the third generation there was appendicitis. In the second family, the father probably had appendicitis, and he as well as the mother had constipation. All the members of the second generation had some gastrointestinal disturbance. Three of the members of this family had appendicitis. In the third generation of the same family constipation was the rule, and in the fourth generation there were two cases of gastrectasis. The explanation of these conditions the writer finds in some inherent weakness of the bowel as a whole, deficiency in its muscular development and nerve function, or possibly an inherited form of vicious metabolism, plus the inherited condition of the appendix.

Significance of Apex Pneumonia.—

E. F. Cordell, in the *Maryland Medical Journal* for October, 1901, says there is great confusion as to the significance of pneumonia of the apex. By some it is regarded as a localization of great fatality, and by others its mortality is said to be slight. The upper lobe is involved in the proportion of about one to three. The combination of involvement of the apex upon one side and of the base upon the other is very rare. The right apex is affected far more frequently than the left. Apex pneumonia is not rare in early life, and the relative frequency of the involvement in the base is the same in the child as in the adult. The general mortality of apex and basal pneumonia is the same. The mortality of uncomplicated apical disease in the child is almost *nil*. Phthisis is rare in connection with acute lobar pneumonia, and when it involves the apex it shows no particular tendency to eventuate in tuberculosis. Involvement of the apex in adults may sometimes be accompanied by a mild course of the disease.

SURGERY.

Surgery of the Biliary Passages.—

John B. Deaver, in the *International Journal of Surgery* for October, 1901, presents an excellent *résumé* of the surgery of the biliary passages. There is no department of surgery in which skill in diagnosis is more essential than in dealing with the gall-ducts and their diseases. While gall-stones are found with great frequency post mortem, it is to be remembered that in 95 per cent of the cases there are no clinical symptoms. Cases of latent stone are liable to sudden attacks of inflammation which rapidly jeopardize the life of the

patient, unless surgical relief is given. The two conditions caused by gall-stone are mechanical obstruction and inflammation, the latter being by far the most important. In all diseases of the upper portion of the abdomen, the gall-bladder should be carefully considered as a factor in its production. If this structure can be felt enlarged as a rounded, tender mass, it forms an easy clue to the trouble. Unfortunately, in most cases of gall-bladder disease it is reduced rather than enlarged, owing to the repeated attacks of inflammation. Gall-stones without inflammation of the gall-bladder or duct only exceptionally cause trouble. They are not given to wandering along the ducts and thus causing obstruction, but they do excite inflammation which prevents drainage of the biliary passages.

In a large proportion of cases the gall-stones cause no trouble, but when they have excited an inflammatory process the period for conservatism is past, and the sooner operation is undertaken, the better. Nature may successfully deal with this inflammatory reaction, but usually it recurs again and again, the larger stones remaining in the gall-bladder.

A difficulty in the diagnosis of these cases lies in a belief on the part of the profession and laity that gall-bladder disease is always accompanied by jaundice; this symptom is nearly always lacking or transitory.

Simple catarrhal inflammation, unaccompanied by gall-stones, need excite little apprehension. If stones are present operation should be undertaken, as dangerous complications may develop rapidly. Where there have been repeated attacks of biliary calculi, it is useless to rely upon medical treatment, as the stones may cause pressure necrosis, empyema, or perforation.

Another form of catarrh of the gall-bladder without gall-stones occurs in the course of the infectious fevers. The only symptoms are a slight tenderness over the gall-bladder, an increase in its size, and slight elevation of the temperature, and if the process is severe, a leucocytosis. This is a form of cholecystitis due to infection of the gall-bladder with obstruction of the cystic duct. It subsides spontaneously as a rule, but should be watched closely, as there may be a rapid development of grave complications.

In inflammatory cholelithiasis, two different sets of symptoms are found, according as the stones are found in the cystic duct or in the hepatic or common duct. When in the gall-bladder or cystic duct, they give rise to enlargement and colic. The gall-bladder in time becomes chronically thickened and often ulcerated, and finally

contracted. Such a gall-bladder is always infected. Jaundice, if present, is due to a secondary inflammation of the common duct. When the stones are in the common duct, important functions of the liver are threatened and the symptoms are very serious. In these cases the flow of bile is obstructed and jaundice is always present. This latter class of cases is sometimes accompanied by an infection, with general septic intoxication or abscess of the liver. As a rule, jaundice which accompanies gall-stone disease is intermittent.

When jaundice has existed for a long time there is a tendency to hemorrhage, which adds to the difficulty of operation. As a rule the diagnosis must be made after the abdomen is opened, and it is only then that the necessary surgical procedures are indicated. In a general way all stones must be removed, so far as possible without injury to the ducts, together with the establishment of free drainage. How these indications are to be met must be decided by the circumstances of the individual case. Exceptionally can all stones be removed and a bladder closed without drainage, and only in recent cases. Where there is any question, it is better to drain the gall-bladder. Drainage into the duodenum is preferred. The operation for connecting the gall-bladder with the duodenum is one of considerable delicacy, and if the surgeon feels any doubt as to his capacity for dealing with this operation, it is better to drain externally. In cases where the gall-bladder is gangrenous, excision is advisable, and this adds little to the gravity of the operation. If there is doubt of the integrity of the gall-bladder, it is wiser to remove it. It should never be forgotten that in gall-bladder surgery the bile is always infected, and it must be prevented from coming in contact with the peritoneum.

Early operation is urged in extensive disease of the gall-bladder and its ducts, as in this way the fatal liver and kidney complications do not develop. It is a good working rule to operate early in the disease rather than early in an attack, but operate early in an attack rather than not operate at all.

An Operation for Cerebral Hemorrhage.—

E. J. O'Meara, in *The Lancet* of October 5, 1901, has a report of a successful and interesting operation for the control of an intracranial hemorrhage. The patient had received several blows about the body and head. He then went a distance of two miles, and continued his employment for four hours. In the evening he felt pain in the head and sat down by the roadside. The following

morning he was found in a state of stupor. He was admitted to the hospital at 10 A.M., and was able to give a fairly good account of himself. About midday following the injury he became rapidly worse, the pulse was slow and the pupils dilated. There were no focal symptoms, and the temperature was the same on both sides of the body. As the day advanced the coma deepened. There was no external evidence of fracture and only a slight redness over the left temple. A horseshoe-shaped flap was turned down. Both branches of the middle meningeal were found to be intact, but the hemorrhage was excessive. Upon passing the finger into the posterior fossa, the brain was found to be compressed by a large clot. This was turned out, and strips of gauze were passed backward between the bone and dura mater, the ends being brought outside to act as a drain. The bone was replaced as accurately as the gauze drain would allow. Immediately after the operation the pulse improved and consciousness returned. The hemorrhage continued for thirty-six hours. On the fourth day the gauze drains were removed. A late complication was a sinus leading to necrotic bone, which was removed. About two months after the operation the patient was discharged recovered.

In commenting on the case the writer says that he has been unable to find any reference to tamponing the extra-dural space. In this case he employed the measure to prevent that sudden expansion of the brain which follows the removal of a clot and which favors edema.

Foreign Bodies in the Air Passages.—

De Forest Willard, in the *Journal of the American Medical Association* of October 26, 1901, presents an excellent *résumé* of the literature of foreign bodies in the air passages. This is a subject that is of interest to every medical man, as in most instances it is emergency surgery. As a rule, foreign bodies that enter the larynx are extruded by the violent explosive cough. If the body has once passed the vocal cords, it reaches the bifurcation of the trachea. As the right bronchus is largest and makes the least abrupt angle, it is likely to lodge upon the right side, though this result is by no means positive. The violent inspiratory efforts which accompany the cough frequently draw the object deeply into the bronchial tubes until it becomes impacted, the position and final fixation being dependent upon the size and character of the foreign body. The degree of asphyxia is dependent upon the amount of lung tissue blocked. If one-half the respiratory tract is shut off, the dyspnea is extreme.

The results, if a foreign body remains permanently fixed in the bronchus, are abscess, pneumonia, and possibly gangrene. Expulsion of a foreign body sometimes occurs after months of delay; more frequently death ensues. Sometimes the clinical picture resembles tuberculosis. The proper treatment for gangrene or abscess is incision and drainage.

In conclusion, the writer says that inversion of the patient immediately after a foreign body has entered the air passages is advisable. Coughing should be encouraged and forcible inspiration restrained. Laryngoscopy is useful if the body is lodged at the vocal cords. The *x*-ray may be serviceable in diagnosis, but in any event a careful investigation should be undertaken to ascertain the position of the foreign body. If the object has lodged at the bifurcation, tracheotomy under local anesthesia may promote its extraction.

Transverse Incisions in Celiotomy.—

C. G. Cumston, in the *Annals of Gynecology and Pediatry* for October, 1901, says that for some time he has been opening the abdomen by a transverse incision, by this means securing a much firmer cicatrix than by the usual incision. He has employed this incision in some forty-five cases. The incision through the skin is made parallel to the upper limits of the pubic hair. The skin and cellular tissue are cut through until the deep fascia is reached. The lower and upper borders of the wound are then freed from the underlying deep fascia and retracted so that the incision becomes elongated from above downward. This admits of a vertical incision of five or six centimeters through the deep fascia. He commonly makes the deep incision over the inner border of either the right or left rectus muscle, and when the inner border of the muscle is exposed the muscular mass is pushed outward, exposing the posterior sheath of the muscle. When the abdomen is once entered, the abdominal wall is held apart by the usual retractors. Through such a combination of transverse and vertical incisions he has performed total hysterectomy, and has been able to do most of the ordinary work on the tubes and ovaries. The deep incision is commonly only six centimeters in length.

Suprapubic Operation for Varicocele.—

A. E. Bradley, in the *Journal of the Association of Military Surgeons* for August, 1901, says that so far as he is aware incision of the scrotal wall has been the only method of operating upon the

scrotal contents. The suprapubic method, while new, possesses unquestioned advantages over incision of the scrotum. The operation begins with the usual method of sterilizing the skin, which is then incised for a distance of two and one-half inches parallel with Poupart's ligament. The underlying fascia is grasped by forceps, and with a blunt dissector torn through until the external abdominal ring is exposed. When the cord is exposed the fascia is divided longitudinally, thus bringing the spermatic vein into view. Slight traction upon the veins serves to pull them upward, emptying the scrotum of the enlarged and tortuous vessels. A ligature is then placed on the upper and lower portions of the vein, the portion included between the two being removed. The uncut ends of the ligatures are now tied, thus drawing together the severed ends of the veins for the support of the testicle. The wound is then closed in the usual manner. A scrotal supporter is used for some time after the operation.

It is claimed for this high operation that it secures perfect asepsis, owing to the locality of the wound, and a support for the testicle is assured that would otherwise be wanting, and without which atrophy might result. The operation is practically devoid of mortality, and is one of the most successful of surgical procedures.

Combined General Anesthesia and Spinal Analgesia.—

G. R. Fowler, in *American Medicine* of October 19, 1901, says that in spinal analgesia the mental suffering is considerable, owing to the fact that the sense of touch is not impaired, and the knowledge on the part of the patient that an incision is to be made. To overcome this he has of late employed general anesthesia combined with spinal analgesia. In this way the nervous dread and anxiety are removed; the general anesthesia is not deep, being just sufficient to render the patient oblivious of his surroundings. He is of the opinion that such a combination of spinal cocainization with general anesthesia will meet the indications in those cases in which full narcosis by chloroform or ether is contraindicated, and in which the mental effects of operating while the patient is fully conscious are objectionable.

Replacing the Fluid in Hydrocephalus with Air.—

William Ewart and W. L. Dickinson, in *Pediatrics* of October 15, 1901, describe the application of what they term "artificial pneumocephalus" in the treatment of two cases of craniotabes.

The operation consisted in removing the fluid in the ordinary

manner and replacing it by the injection of aseptic air. In this way the fluid is more completely evacuated than in the ordinary operation, which only discharges so much as can be accomplished by the ordinary resiliency of the skull. The pumping in of aseptic air forces the fluid out. The treatment was carried out in two cases, one of which was followed by excellent results, one necessitating a single tapping. In another case, eight tappings were used in all, eleven pints of fluid being removed. In the latter, and more severe case, the results were not so favorable, but on the whole were better than under any surgical treatment heretofore employed. It seems to be a method especially applicable in cases of moderate effusion. It is claimed that the introduction of the aseptic air is accomplished without greater risk than the usual method of paracentesis.

Production of New Bone by Periosteum.—

S. H. Branth, in the *New York Medical Journal* of October 12, 1901, studies the question of the reproduction of bone by the periosteum. Some twenty years ago he removed a lower jaw for phosphorus necrosis. The periosteum was left, and later produced a deposit of bone which perfectly restored the contour of the jaw.

In 1884 he removed nearly all the os calcis in a boy who had suffered from hip-joint disease, and who later had tuberculous disease of the spine. The bone was entirely reproduced.

In amputations the surgeon should cover the end of the bone stump with a flap of periosteum, which will give increased vitality to the end of the bone and offer a better support for an artificial limb. A periosteal flap avoids conical and pointed stumps, which are so often a source of discomfort. In operating for the removal of bone, care should be taken not to injure the periosteum, which should be carefully raised by a tenaculum or toothed forceps. Its further separation may be accomplished by a periosteotome.

The Medical Treatment of Surgical Tuberculosis.—

W. B. Thistle, in the *Canadian Practitioner and Review* for October, 1901, points out the very significant fact that the ordinary division into medical and surgical tuberculosis is an artificial classification. There is no essential difference in the nature of the disease, as the division is only one based upon certain requirements of treatment. The transference from the medical to the surgical class does not involve an alternative treatment, but something additional. Medical tuberculosis does not cease to be medical because some surgical or mechanical treatment is required. While such a statement seems

trite, it is often forgotten in the practical treatment of patients, as it is often found that surgical cases requiring surgical treatment receive little medical care, the identity of the pathological process being lost sight of. There is no essential difference between tuberculosis of the apex of the lung and that involving a joint. In each case effort must be directed toward maintaining the resistance of the patient and improving the nutrition.

Recovery from a Fracture-Dislocation in the Upper Dorsal Region of the Spine.—

Charles A. Morton, in the *Clinical Journal* of October 2, 1901, reports the case of a man who was struck on the shoulders by a heavy falling body, while in a stooping position. There was a depression of the spine at the level of the second and third dorsal vertebræ, with fracture of the sternum and of the left clavicle. There was no anesthesia, but complete paralysis of both lower extremities. The following day there was a return of power in the right leg, and three days later the catheter was no longer necessary, as the urine was voided spontaneously. Two months after the accident the patient got up. At this time there was some spastic rigidity in the legs, exaggerated knee-jerks, and ankle clonus. Three months after the accident he was able to dispense with crutches, although there was still some stiffness in the limbs. The writer calls attention to the fact that there was displacement of the vertebræ.

THERAPEUTICS.

Mercurol in the Treatment of Syphilis.—

Winfield Ayres, in *The Lancet* of October 19, 1901, gives his experience with the use of mercurol in tablet form in the treatment of syphilis. In all he treated 180 cases during a period of eight and a half months. Of these, eighty-five either did not return after the first visit, or were irregular in taking the medicine, so that they were eliminated from the records. This left ninety-five cases which were under observation during a period of from six months to a few weeks. Of these, seventeen were decidedly benefited; improved, eight; no improvement in two weeks, three; no improvement in four weeks, one; and no improvement in three months, two. These were all dispensary patients, and it is uncertain whether they took the medicine regularly.

In all cases the drug was administered steadily, beginning with

one grain and increasing until either the symptoms were controlled or the teeth and gums became tender. If the symptoms were not controlled before the physiological effect of the mercury became apparent, then small doses of potassium iodide were given. In sixty-seven out of the ninety-five cases, no other medicine than mercurol was given. In fifteen out of the remaining twenty-eight, the addition of iodide of potassium was found to be sufficient to control the disease, while in six others the addition of an iron tonic sufficed for this purpose. Only one of the patients suffered from gastric irritation. Eleven had diarrhea and three lost in weight. Only one patient out of the whole number had to be taken off mercurol. There were two patients who could not take a grain of the drug, the average dose in other cases being about two grains three times a day. The patient should be started on one grain three times a day; on the fourth day he should be given an additional grain, and four days later another grain, the increase being continued every other day until there is a slight salivation, or looseness of the bowels, or there begins to be some improvement in the symptoms. If diarrhea occurs the patient should be given bismuth subnitrate, the mercurol at the same time being continued. Mercurol should always be given in pill form, never in solution, because of its instability. Better results are obtained in private patients than in those who come to the dispensary; they are better nourished, and the medicine is taken with regularity. Of forty-two private patients, it was only necessary to give iodide of potassium to one; in all the others the mercurol controlled the symptoms.

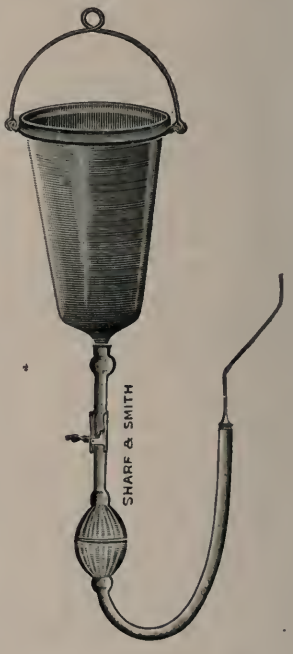
Lecithin in Tuberculosis.—

H. Claude and A. Zaky, in *La Presse Médicale* of September 28, 1901, have an experimental and clinical study on the use of this substance in the treatment of tuberculosis. Danilewski and Sorono have demonstrated in a scientific manner that it promotes nutritive change in the tissues. Taken by the mouth or by hypodermic injection there follows an increase in weight in animals that are under a regulated diet. In all cases it was noted that there was a diminution in the elimination of the phosphorus excreted. Lecithin has been employed in neurasthenia and diabetes with excellent results. In tuberculosis the nutritive changes are more markedly augmented, and in all there was diminution in the elimination of phosphorus and an increase in the nitrogenous assimilation. Its administration was always followed by an increase in appetite and an improvement in the general condition. A conclusion as to the action of this sub-

stance was not arrived at with any definiteness, the writers' observations not having covered a sufficient time to speak authoritatively on this subject. They believe that lecithin will render important service in the treatment of tuberculosis, not for its specific action upon the local lesions, but because of its remarkable power of altering the nutrition of the body. It will prove an excellent adjuvant to other methods of treatment.

The Treatment of Suppuration of the Antrum Through the Natural Opening.—

N. H. Pierce, in the *Laryngoscope* for September, 1901, says there has not been that attention given to the treatment of suppuration of the antrum by irrigation through the natural opening that the method deserves. The opening into the antrum varies in size from three to nineteen millimeters, and its form varies; in some it is elliptical, and in others kidney-shaped. This opening may be readily reached by passing a properly bent probe through the anterior nares along the middle meatus. The opening may be more readily entered if the parts have been previously treated with cocaine and suprarenal substance. The opening is easily found, excepting where there is marked deviation of the septum, hyperplasia, or tumors. In the writer's experience the opening may be found without the aid of vision, and the tube entered as readily as the passage of the Eustachian catheter. With good illumination and by the aid of vision the tube is much more readily passed. The solutions employed in treating the maxillary sinus should be unirritating. The writer has used Thiersch's solution of bicarbonate of soda, carbolic acid in 2.5 per cent, a saturated solution of boric acid and aceto-tartrate of aluminum, one ounce of the saturated aqueous solution to two quarts of sterilized water.



The writer concludes that in diseased antra, accessory openings are more frequently found than in healthy antra. In a certain number of cases the natural opening may be used for irrigation. An

effort should always be made to treat the diseased sinus through the natural openings before resorting to puncture. It is a matter of no importance whether the treatment be through the ostium or an accessory opening.

Contraindications for Adrenalin in Eye Diseases.—

Henry B. Le Mere, in a letter to *American Medicine* of October 5, 1901, calls attention to certain contraindications in the use of adrenalin. It is to be remembered that this substance is a powerful constrictor of the peripheral vessels, and being a remedy of high physiologic activity, it of necessity must have certain contraindications. Remedies that have no physiological power are usually quite innocuous, and in proportion that as a remedy is powerless to do harm, in the same degree it lacks capacity to do good. If we remember, therefore, that adrenalin is one of the most powerful remedies in altering the circulation, we can readily see that it must have certain marked contraindications. These are pointed out by Le Mere in relation to the eye. In using adrenalin in congestion of the conjunctiva, there is practically no risk, providing the ciliary body and the iris are not involved, but if there is a tendency to iritis, especially such as is found in ulcer and inflammation of the cornea, then the danger is real. Three such cases have recently come under the writer's notice: one in which a superficial ulcer was, after the instillation of adrenalin chloride solution, complicated with adhesive iritis. The other two were cases of iritis progressing favorably, when acute exacerbations, together with adhesions, immediately followed the use of this drug.

Adrenalin Chloride.—

Burton S. Booth, in the *Albany Medical Annals* for October, 1901, says that in adrenalin chloride we have all the valuable properties of the desiccated adrenal, but in a more concentrated and accurate form. He has used adrenalin chloride in the nose and throat, introducing it upon a cotton applicator. The field of operation is first thoroughly cleansed and an adrenalin solution of from 1-to-3000 to 1-to-5000 is applied to the membrane before cocaine is used. Where the nasal membranes are engorged and it is necessary to shrink them for purposes of inspection, the 1-to-5000 solution is strong enough. If placed in the hands of a patient to be used in an atomizer, a procedure which the writer does not advise, the solution should have a strength of 1 to 10,000. He has met with some cases of brisk secondary hemorrhage where adrenalin has been employed,

but this is readily avoided by the use of a weak spray at occasional intervals until the vessels have become occluded. He has found that a spray of 1-to-10,000 adrenalin solution used with a down-shoot Sass tube into the larynx allays hoarseness, permitting a singer to use the voice for a short time. Combined with chloretone, it will shrink the tissues about the Eustachian tube and anesthetize the passages so as to admit of the passage of a Eustachian catheter.

Soluble Silver as an Internal Antiseptic.—

Credé, in the *Berliner Klinische Wochenschrift* of September 16, 1901, calls attention to the fact that colloid silver, with which his name is associated, is a solution of silver which readily filters through paper, though perhaps not an ideal preparation. It is tasteless and unirritating and is a powerful antiseptic. The streptococci form with it a silver salt which is exceedingly destructive to germs. His extended experience with the solution convinces him of its great value, particularly in infected wounds. The usual forms of antiseptic solution, such as mercury and iodoform, are toxic, but silver is harmless. It is useless when administered by the mouth or by subcutaneous injections; the only method of administration is by inunction. It may be given by intravenous injection. He employs the colloid silver in acute rheumatism, gangrene, typhoid fever, scarlet fever, and septic complications. It is always used as an intravenous injection or by inunction. Experiments upon animals show quite as favorable results as in the human. The silver is absorbed and eliminated very rapidly, and hence the inunctions must be repeated three or four times a day.

Tuberculocidin in Tuberculosis of the Bladder.—

Rohrig, in the *Centralblatt der Krankheiten der Harn- und Sexualorgane*, Bd. xii, Heft 5, reports a case of tuberculosis of the bladder in which the tuberculocidin of Klebs was used after all other methods of treatment had failed. The remedy was given in from five- to forty-drop doses by the mouth, it causing no increase in temperature. The local treatment consisted of the injection of solutions of sublimate for the purpose of preventing the secondary mixed infection which so commonly occurs in tuberculosis of the bladder. In addition five grammes of tuberculocidin was injected into the bladder after it had been carefully washed out. The results were brilliant. The foul urine became clear, the pain decreased, and the periods between micturition became longer, enabling the

patient to lie in bed all night. The cystoscopic examination showed that a tubercular ulcer of the bladder had become covered with healthy granulations.

Subcutaneous Injections of Gelatin in the Treatment of Internal Hemorrhage.—

Grunow, in the *Berliner Klinische Wochenschrift* of August 12, 1901, says that in the subcutaneous injections of gelatin solution we have a powerful means of checking hemorrhage into the internal organs. The method is of easy application and not accompanied by any unpleasant complications. It is to be recommended in all cases of severe internal hemorrhage, whether acute or chronic. Hemostatics may be employed in connection with the gelatin injection, which has for its principal action an increase in the coagulating power of the blood.

GYNECOLOGY, OBSTETRICS, AND PEDIATRICS.

Preservation of the Ovaries and Uterine Tissue in Hysteromyomectomy.—

Henry D. Beyea, in the *University of Pennsylvania Medical Bulletin* for October, 1901, says that the treatment of myomata of the uterus has followed the growth of pelvic surgery. When abdominal section was a dangerous operation, uterine fibroids were treated symptomatically, hoping that the advent of the menopause would give relief. Salpingo-oophorectomy was replaced by hysteromyomectomy, which for ten years has remained the operation of election. An improved technique has enormously reduced the mortality of this operation, which is now often as low as two per cent.

A more conservative method of operating by enucleation has of late been employed in certain selected cases. Such a modified operation has only been possible when there was absence of associated disease of the tube and ovaries, and was only applicable to pedunculated, sessile, interstitial, or broad ligament growths, so disposed that they could be shelled out of their bed without undue injury or loss of uterine tissue. All myomata not coming within this class are removed by the operation of hysteromyomectomy, in which operation the uterine body to the internal os, or with a portion of the cervix and both tubes and ovaries, is excised.

About a year ago it occurred to the writer that a more con-

servative operation could be employed in cases which had been heretofore subject to the radical hysteromyomectomy. These cases included those in which three-quarters to two-thirds of the uterine body was involved in the growth, but in which the tubes and ovaries were normal. The method of operation was to leave tubes and ovaries intact so far as they were not diseased, and to amputate the uterus as high as possible so that a portion of the uterine body, lined with integument, even though small in amount, would be left in the stump. Such an operation would conserve clinically normal ovaries and uterine tissue, retaining the physiological relation between these tissues and preserving ovulation and menstruation.

A case in which this modified operation was tried was that of a childless married woman, 34 years of age. Prior to her illness, with the exception of the usual diseases of childhood, she had always had good health. The menstrual flow first appeared when she was 14 years of age, was always regular, slightly painful, and scanty in

amount. Five years before coming under observation she noticed a tumor in the abdomen. For three years it gave her no discomfort. It then rapidly increased in size, pressing upon the nerves of the lower extremities and causing irritation of the bladder. In the late period of her illness menstruation had increased to once every two weeks. Upon examination, the pelvis was found occupied by a myomata of the uterus, the size of a fetal head. The tumor involved the upper two-thirds of the uterine body, but the lower uterine segment could be outlined merging into the mass at a point just above the internal os. The broad and ovarian ligaments were ligated on each side so as to include the ovarian artery as it entered the tumor. The tube and ovary were outside the ligature; the round ligaments were ligated and the incision made through the broad ligaments. The peritoneum on the anterior surface of the tumor was incised at a higher point than usually, and displaced downward with the bladder. The uterine arteries were secured as they entered the uterine tissue, covering the lowest portion. The operation was followed by normal convalescence. During the year which has elapsed since the operation the patient has menstruated regularly every twenty-eight days. The flow is small in quantity, rarely lasting more than a day.

The writer has made a careful search of the literature for a description of a similar conservative operation, but without result, though cases have been reported in which after total hysterectomy there has been no atrophy of the ovaries and menstruation has persisted. The retention of this function is believed to be due to the preservation of a small portion of normal endometrium. In cases in which the ovaries were enlarged at the time of operation, it was found that they had diminished, but had not atrophied.

While the writer's experience with this conservative operation is limited to one case, he thinks that it is worthy of adoption, as there seems to be no greater mortality than from the ordinary hysteromyomectomy, and by it there is a preservation of normal organs and functions. Where possible, it should be applied in women under 40 years of age.

The Factors which Lead to Variations in the Age of Puberty in Girls.—

A. E. Giles concludes a careful statistical study in the *Medical Chronicle* for July, 1901, of the variations in the clinical characters of menstruation and the period of puberty in girls.

The Age of Puberty.—(1) Race has a certain influence on the age of puberty, but is subordinated to the influence of climate.

Broadly speaking, a curve of latitudes of different countries from 10° to 66°, and a curve of mean annual temperatures from 25° C. to 0° C., correspond fairly closely with a curve of the age of puberty in those countries ranging from 12 to 17. The mean age of puberty between these extremes—viz., 14.5—forms a kind of "menstrual equator," and corresponds with the age of puberty in London. (2) Puberty is established earlier in towns than in the country. (3) Among the wealthier classes puberty occurs earlier than among the poor, the middle classes occupying an intermediate position in this respect. Improved mental status has the same influence as better social position. Early sexual relations tend to hasten the advent of puberty. (4) Girls of robust constitution menstruate earlier than the delicate ones. The tuberculous diathesis is associated with late menstruation, and the neurotic diathesis with early puberty. (5) Menstruation is generally established earlier in brunettes and later in positive blondes. It is latest in the group of "sub-blondes," namely, girls of lighter negative or nondescript coloring.

Clinical Characters of Menstruation.—(1) The periodicity of menstruation is more irregular in those who start menstruating early or late than in those whose first menstruation is from 13 to 17. The greatest regularity is associated with a moderate amount of loss. In the "moderate" group, 11 per cent are irregular; in the "scanty" and "profuse" groups, 32 per cent. So also the irregularity among blondes is 32.5 per cent; among brunettes, 24.7 per cent; and in the intermediate grades of coloring, 16 per cent. The proportion of irregularity among all cases is 17.6 per cent. Extra work or worry and sexual excitement may antedate the periods. (2) The duration of the flow is directly proportional to the amount of blood lost. (3) The amount of the monthly flow is greatest in those who menstruate early, and least in those who start late. When the age of puberty is 12 or earlier, 21.8 per cent lose little, and 58.2 per cent lose much. When puberty does not occur till the age of 18 or later, 66.6 per cent lose little, and 20.1 per cent lose much. In warm climates menstruation is more abundant than in cold climates. Just as darker pigmentation is associated with earlier puberty, so it is found in association with greater loss. The percentage of those who lose "little" is 39 among brunettes, 48 among sub-brunettes, 50.8 among sub-blondes, and 55 among blondes; whilst the percentage of those who lose "much" is 41.9 for brunettes, 25.5 for sub-brunettes, 25 for blondes, and 16.9 for sub-blondes. After marriage and child-bearing the amount of loss is unaltered in 56 per cent of cases, increased in 20 per cent, and diminished in 24 per cent. Physical

fatigue shortens the intervals and increases the pain and quantity. (4) About 35 per cent of women menstruate painlessly at first. The amount of pain varies with the quantity lost and not inversely. Among those who lose "very little," 40 per cent have no pain and 28 per cent have severe pain. Among those with "profuse" loss, only 16 per cent are free from pain, and 56 per cent suffer severely. Pain before menstruation commences is most often sacral; during the flow it is suprapubic. After marriage and childbirth the amount of pain is unaltered in 65.3 per cent of cases, increased in 20.7 per cent, and diminished in 14 per cent.

Cystitis, Pyelitis, and Pyelonephritis in Women.—

T. R. Brown, in the *New York Medical Journal* of August 31, 1901, says that it is most important in the treatment of these affections to arrive at a correct diagnosis. They are always due to infection with some microorganism, of which the colon bacillus is the commonest. In the majority of cases the condition can either be prevented or cured, if its underlying principles are recognized and corrective measures inaugurated. There are certain forms of urinary hyperacidity which simulate closely true vesical infections. The improper treatment of this condition may lead to the development of a true cystitis, with deplorable consequences. In no condition is prophylaxis more essential than in the urinary tract. An absolute diagnosis of renal infection can be made only by ureteral catheterization, but in the majority of cases a probable diagnosis may be arrived at by a consideration of the relation between albuminuria and pyuria and by careful cystoscopic examination of the bladder, especially that portion about the ureteral orifice.

Contrary to the opinion expressed in the text-books, the great majority of infections both of the bladder and of the kidney are associated with acidity of the urine—that is, are due to organisms which do not split up the urea.

In cases of renal infection, where the microorganism has the power of decomposing urea a stone is invariably formed. To thoroughly understand all cases of cystitis and pyelitis, a careful chemical, microscopical, and bacteriological study of the urine is absolutely essential.

Measurement of the External Urethral Orifice in Women.—

G. B. Miller, in the *Bulletin of the Johns Hopkins Hospital* for August, 1901, says that the measurement of the lumen of the female urethra is given by Gray and Quain as one-fourth of an inch. The

experience of H. A. Kelly in urethral surgery is that the external urethral orifice represents the narrowest portion of the urethra. In dilatation within moderate limits, practically all the laceration which occurs takes place at the external meatus. In view of the fact that no extended series of investigations have been made upon the diameter of the external urethral orifice, 100 gynecological cases were measured with a slender metal cone, calibrated from two to twenty millimeters; the instrument was pushed into the urethra as far as it would readily go, and the measurement was then read. Of these 100 cases, the smallest urethral orifice was found to be four millimeters, and the largest twelve millimeters, the average diameter being 7.8 millimeters. In cases with prolapsus it was found that the meatus averaged larger than in those where there was no relaxation of the vaginal outlet.

Infantile Scurvy.—

J. Comby, in the *Archives de Médecine des Enfants* for August, 1901, reports the case of a child of eleven months, suffering from typical infantile scorbutus. It had been upon milk modified after the Gaertner method. The changing of the food to fresh milk to which had been added a small quantity of purée of potatoes and of orange juice resulted in rapid recovery. The writer says that he has used cow's milk sterilized for the past ten years, both in clinic and in his private practice, and has noticed no cases of scurvy occurring under this diet. The *lait maternise* after the method of Gaertner, as it is found in commerce, is responsible for the majority of cases of infantile scurvy observed in France. This milk is sterilized at a temperature of 110° C., and water is added to dilute the casein and sugar.

FORENSIC MEDICINE.

Belladonna Poisoning from the Application of a Plaster.—

The Lancet of October 19, 1901, details editorially the case of a young woman who had been indulging in the sport of duck-shooting, and while so doing she got very wet. An attack of lumbago followed. A practitioner was not sent for, but whiskey was rubbed into the painful region. The pain continued for four days. Then the back was rubbed with "Jacob's oil." This only produced a slight redness, which disappeared in a few hours, leaving the skin normal in appearance. On the fifth night a belladonna plaster was applied. She wished to go duck-shooting the following morning,

but when her maid went to rouse her at four o'clock she was found to be suffering from the characteristic symptoms of belladonna poisoning; her throat and mouth were dry, there was a burning sensation in these parts, and she could scarcely speak; the pupils were dilated; and she "had lost the power of controlling her movements, and her hands felt as though they were getting smaller." There was a rapid recovery.

The Lancet refers to a case reported in its issue of January 27, 1894. A man began to feel that his mouth was dry, three-quarters of an hour after putting a belladonna plaster six inches by four on his back; the pupils were widely dilated, and delirium of the characteristic type occurred.

These two cases, while rare, show that grave symptoms of belladonna poisoning may arise from the simple belladonna plaster, which is sometimes used as a domestic remedy. So far there has been no record of death in such a case. The amount of belladonna absorbed in this way, if the skin is unbroken, must be slight, consequently in the reported cases there must have been a marked idiosyncrasy.

Risks Taken by a Patient in a Charitable Hospital.—

The United States Circuit Court of Appeals, in a decision in the case of Powers *vs.* The Massachusetts Homeopathic Hospital (*Journal of the American Medical Association*, Oct. 5, 1901), is very sweeping in the matter of liability of charitable hospitals. To the court it seems intolerable that a distinction should be made between paying and non-paying patients; the one should be entitled to protection from gross negligence as well as the other. When a hospital is organized entirely for charitable purposes, and its income is devoted to the succor of the sick and wounded, it is not necessarily implied that persons cannot avail themselves of the charity, and at the same time make proper compensation. If they do, however, avail themselves of a charitable institution, they must themselves assume the risk of the negligence of the servants in administering the charity, if it can be shown that the benefactor has used due care in the selection of those servants. "It would be intolerable that a good Samaritan, who takes to his home a wounded stranger for surgical care, should be held personally liable for the negligence of his servant in caring for that stranger. Were the heart and means of that Samaritan so large that he was able to provide not only for one wounded man, but should establish a hospital to care for a thousand, it would be no less intolerable that he should be held liable for the

negligence of his servants in caring for one of those wounded men." The court cannot perceive that the position of the hospital in this case differed from the one supposed. The persons whose money established it are good Samaritans; the purity of their aims may not justify their torts or wrongful acts, but if a suffering man avails himself of their charity, he must take the risk of malpractice if their charitable agents have been carefully selected.

Sudden Death Resembling Pulmonary Embolism.—

P. N. Gerrard, in *The Lancet* of October 5, 1901, reports a case in which the symptoms closely resemble those of pulmonary embolism. The patient was suffering from a septic inflammation of the right hand which necessitated an amputation at the middle of the forearm. The general condition of the patient following the amputation was good, but a small quantity of pus formed beneath the flaps. On the eighth day after the operation the patient was taken with what was thought to be a fit, and in five minutes was dead.

The post-mortem examination was made twelve hours after death. The lower lobe of the left lung was deeply congested. The heart was normal in size and shape; the left side contained a small amount of fluid blood; the right auricle contained a long, thin, ante-mortem clot which extended into the ventricle. The clot was about four inches long by a quarter of an inch in its broadest part. Both the tricuspid and mitral valves were slightly thickened. The aorta was normal. The heart and lungs were removed *en masse*, and the vessels were traced out to their smallest caliber, but without detecting an embolus.

The cause of death in this case was thought to be pulmonary embolism, but notwithstanding the most careful search no clot was found. The reporter concludes that the immediate cause of death was cardiac syncope consequent on the disturbance of an ante-mortem clot which had formed in the right auricle, this being due to the septicemia. The cause of death was put down as cardiac thrombosis.

It is understood that all original communications sent to this journal are for its pages exclusively, excepting in cases where articles are published in the transactions of the Societies before which they are read, or in which an abstract appears. Articles will be illustrated. Authors will be furnished a liberal number of reprints; or, if they so elect, an honorarium will be paid for original communications.

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